THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
The Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · The Railway Record.
Railways Illustrated · Established 1835 · The Railway Official Gazette

Published Every Friday
at
33, TOTHILL STREET, WESTMINSTER, LONDON, S.W.1
Telegraphic Address: "Trazette Parl., London"
Telephone No.: WHItehall 9233 (12 lines)

Branch Offices:
GLASGOW: 87, UNION STREET
Telephone: Central 4646
NEWCASTLE-ON-TYNE: 4, ROYAL ARCADE, PILGRIM STREET
Telephone: Newcastle-on-Tyne 22239
MANCHESTER: CENTURY HOUSE, ST. PETER'S SQUARE
Telephone: Central 3101
BIRMINGHAM: 81, EDMUND STREET
Telephone: Central 3049

Annual subscription payable in advance and postage free
British Isles and Abroad .....£2 5s. 0d.
Single Copies .....One Shilling
Registered at the General Post Office, London, as a Newspaper

Vol. 90 No. 16 Friday, April 22, 1949

CONTENTS

	PAGE
Editorial Notes	429
Ulster Transport Authority	431
Why Nationalise?	431
British Railways Public Relations	432
Canadian National Railways	433
Letters to the Editor	434
The Scrap Heap	436
Overseas Railway Affairs—South Africa—Victoria—New Zealand—Canada—Argentina—Poland—Italy—France—Jugoslavia—Greece	437
Compression-Ignition and High-Pressure Steam	439
Public Relations & Publicity Reorganisation, British Railways	441
Ulster Transport Authority	443
Electric Traction Section	444
New Rolling Stock for a Spanish Electric Railway	445
Fastenings Between Steel Sleepers and Flat-Bottom Rails	446
Personal	447
Progress of the French National Railways, 1948	450
Institute of Transport Congress at Buxton	450
Improvements to the Italian Railways with Marshall Aid	451
Notes and News	454

BRITISH TRANSPORT
DIRECTORY OF OFFICIALS

For reference purposes "The Railway Gazette" has compiled a list of members of the Ministry of Transport, the British Transport Commission, the Railway Executive, the London Transport Executive, the Road Transport Executive, the Docks & Inland Waterways Executive, and the Hotels Executive, together with their principal officers, so far as they have been announced.

PRICE ONE SHILLING

THE RAILWAY GAZETTE

33, TOTHILL STREET, WESTMINSTER, S.W.1

Labour Party Policy

NOTWITHSTANDING the results which have been achieved so far in the field of socialisation, the executive of the Labour Party has drawn up a lengthy list of industries and services which it considers suitable for State ownership. It includes industrial assurance companies, cement, sugar manufacturing and refining, water supplies, and some minerals. This programme is to be debated at the annual conference of the Party, to be held in June, after which the final programme for the next General Election will be drafted. It is clear that the socialisation of industry and the increasing interest of Government in trading makes an irresistible appeal to important sections of the Labour Party. The Co-operative Party at its annual conference, held during Easter, heard some criticism of the salaries now paid to some members of the boards of nationalised industries. One speaker secured support for a proposal that the Government should be asked when appointments were made to these positions not to pay salaries substantially in excess of those in comparable executive positions in the co-operative movement. These salaries in general are on a lower scale than those paid by private enterprise. Whether the problem to be solved is the rate of pay which is to rule for the job, or the selection of the best equipped person to fill the required office, is a matter which, as yet, does not appear to have received the attention and discussion it deserves.

* * * *

Sir George Beharrell, D.S.O.

During the 1914-18 war the Government relied steadily on the railway companies for assistance in meeting a variety of emergencies. A surprisingly large proportion of the railwaymen chosen for important administrative work came from the North Eastern Railway. Most of them had been selected originally for their railway posts by Sir George S. Gibb, when he was General Manager, and had been trained under him. Among that number was Sir George Beharrell, who has just relinquished the Chairmanship of the Dunlop Rubber Co. Ltd. Three of his early years, spent in the General Manager's office at York, were an excellent preparation for tackling the problems of the Goods Department from 1906 until the outbreak of war, first as assistant to Sir Eric Geddes and later to Sir Ralph L. Wedgwood. In 1915 he became associated closely with the wartime activities of Sir Eric Geddes at the Ministry of Munitions, the War Office, and the Admiralty. The knighthood conferred on him in 1919 was a fitting reward for four years of unremitting toil on many subjects of first rate consequence. He continued to render invaluable help to Sir Eric Geddes when the Ministry of Transport was created. After the passing of the Railways Act, 1921, the partnership of these two remarkable men became complete on the transfer of their services to Dunlops. The only direct link with transport which they retained was their interest in Imperial Airways. That, too, is a thing of the past, but in their day and generation they did much to influence transport development in this country.

* * * *

"Workers' Control" Again

Before nationalisation of the railways, Labour speakers and writers made great play with the benefits which would result from State ownership. Not the least of these was to be an immediate and increasing measure of workers' control. Since nationalisation, because things have not worked out like that, a rather different approach has been evolved. Mr. James Harrison, M.P., writing in *The Railway Review*, commences his article thus: "I am not one to under-estimate the use of slogans in mass political and industrial movements for, whilst any such slogan conveys different detailed meanings, it does reflect a general desire. As a slogan, workers' control has served a useful purpose." He goes on, however, to admit that when faced with the problem of devising and creating industrial conditions which enable real workers' partnership to operate, slogans are of no use. He claims, next, that the newly-acquired State undertakings are the best fields for experimental research in the development of workers' control, and that the railways are the best starting point, because on them there is a widespread volume of experience derived from the existing consultative machinery, though he admits

that he is not enthusiastic about accepting wider responsibilities in industrial management until the question of real workers' partnership has been solved.

* * * *

Delegation of Authority

Mr. Harrison believes that unless the responsibility delegated to the Railway Executive is reasonably shared, and a share voluntarily accepted by the staff generally, there will be an inevitable failure, in which all parties will share. He also points out that, formerly, local officers had much greater powers. To achieve greater uniformity and increase efficiency many local powers were concentrated in the railway administrative headquarters, and this centralisation of authority has gone so far that local officers have been deprived of any opportunity to exercise local initiative. Stripping them of all authority was a poor alternative to ensuring that these officials were made acquainted with, and had the capacity to operate, the general plans laid down by headquarters. Mr. Harrison admits that greater authority would introduce diversity, but argues that local conditions vary and that no amount of centralisation will eliminate such differences.

* * * *

Advertising Railway Staff Vacancies

After negotiations between the Railway Executive and the trade unions, arrangements have been agreed for the introduction of a standard scheme of advertising vacancies for salaried staffs on British Railways. The scheme covers all salaried staff, except police, having a salary up to and including £630 a year. In general, instead of the vacancies being advertised on a departmental and district basis as at first proposed, the general practice will be to advertise vacancies Regionally and inter-departmentally. In the case of vacancies in male special-class categories, and in groups "B" and "C" of professional and technical staff, vacancies will be advertised to all salaried staffs inter-Regionally and inter-departmentally. Although not included in the official scheme, it is understood that it is the intention to include in a comprehensive list all vacancies up to and including £1,000 a year, and also vacancies arising at Railway Executive and British Transport Commission headquarters.

* * * *

Handling Brighton Holiday Traffic

In our issue of April 8 we described the remarkable volume of traffic dealt with at Brighton station on a normal weekday in winter. Over the Easter holiday even this was exceeded, and in response to our inquiry, Mr. S. W. Smart, Superintendent of Operation, Southern Region, has given us some particulars of the holiday traffic there. From the Thursday up to and including Easter Monday, 128,200 tickets of holiday-makers from London were collected at Brighton; on Monday itself the total was 42,000. On Monday morning the usual frequent service from Victoria and London Bridge was augmented by four specials. Between 5 and 10 p.m. on Monday, 51 ordinary and extra trains left for London, and although a long queue stretched down the street leading to the station, it was on the move all the time and passengers were got away with little delay. This is a fine performance which speaks well for the capability of the Brighton staff, even taking into account the flexibility permitted by the use of multiple-unit electric trains which obviates the great number of engine movements necessary at Brighton in steam days. At least, however, the present staff has never been called on to cope with such a problem as an excursion train of forty-two coaches and six engines which presented itself at Brighton on Easter Monday 105 years ago.

* * * *

Railway Engineers' Staff Salaries

A year ago we printed a short editorial on the subject of the salaries paid to railway engineers, and, judging by the correspondence which has ensued, it aroused considerable interest and also elicited the fact that on general and personal matters the railway staff is quite free to write to the Press. In the past, engineering assistants have suffered in status and salaries because they were not united in organisation, and it is to be deplored that the railway companies were only impressed by the power of a negotiating body and that the individual was quite helpless in pressing a claim. Since the war, numbers of the most promising men have left the railway service because pay and prospects are not equivalent to those in private industry, and it is clear that this state of affairs should be remedied if the efficiency of British Railways is not to be impaired.

* * * *

Cheap Off-Season Holiday Travel Suggested

The British Tourist & Holidays Board was set up by the Board of Trade in 1947 to study and report on the special problems of the holiday industry and to foster and develop the tourist, catering, and holiday services of the United Kingdom. The work of the Board is performed by four divisions dealing respectively with tourism, home holidays, hotels, and catering. The Home Holidays Division recently published its second annual report, which states that discussions have been held with the Railway Executive about the possibility of specially reduced fares for those taking their annual holidays in months other than July and August. It has been suggested that a cash incentive, making it cheaper to travel before or after the peak season, should be offered by British Railways and that such a policy would assist the efforts of resorts and hoteliers, who are already reducing their terms for May, June, and September. The Division has also proposed to the Railway Executive a holiday ticket—single fare for a double journey and available for seven days or multiples of seven days, but only for the months before or after July and August.

* * * *

The Worth of a Railway

Mr. S. W. Fairweather, Vice-President, Research & Development, Canadian National Railways, in a recent address given in Toronto, said: "A railway's worth in the national sense should not be measured by its profits. It must be viewed in relation to the economy of the country because the railway industry is essential to the well-being of the State and is a creator of wealth. Those of us who live in populous centres, where other means of transportation are very much in evidence, may easily fall into error, but the miner, lumberman, fisherman, and farmer, engaged in their several occupations in distant places, are under no illusion." Mr. Fairweather held that the railway was still the most important facility in the development of Canada, as it was still the annihilator of distance. New resources and new fields of activity were being discovered every day, and depended on railways. The railway industry grew with the country, and its services had to come before that growth.

* * * *

Manganese-Vanadium Steel for Locomotive Boilers

Increasingly high locomotive boiler pressures are directing attention to the use of high-tensile alloy steels in boiler construction, so that the necessarily enhanced strength of the boiler may not be accompanied by an excessive addition to its weight. Now that boiler fabrication by welding also is on the increase, a disadvantage of alloying is that many alloys which are the most effective in adding to the tensile strength of the steel, at the same time reduce its weldability. It is claimed for manganese-vanadium steel, however, that no such disadvantage attaches to the use of these alloys. Tests have been made successfully by the Alco Products Division of the American Locomotive Company and the New York Central System with a steel containing 0·14 per cent. carbon, 0·25 per cent. silicon, 0·99 per cent. manganese, and 0·09 per cent. vanadium, and have shown it possible to produce welded joints that are as strong as the original metal. Indeed, tensile tests of joints welded both by the submerged arc process and the manual shielded metal arc process showed tensile strengths of 35·9 and 36·9 tons per sq. in. respectively, as compared with the 35·5 tons per sq. in. of the original plate; specimens of all-weld metal alone broke at 37·5 tons per sq. in., with an elongation as high as 25·5 per cent. in 2 in. The value of the vanadium is that it decreases the tendency of the steel to transform itself to the exceedingly hard structure known as martensite during rapid cooling.

Ulster Transport Authority

As from April 1 the Ulster Transport Authority became possessed of the Northern Counties Railway, after negotiation with the British Transport Commission, and thus completed the first stage in its organisation. The Bill setting up the Ulster Transport Authority received the Royal Assent on August 10 last year, and in our August 13 issue we compared the Transport Act, Northern Ireland, 1948, with the British Transport Act, 1947, which effected the nationalisation of inland transport in this country and established the British Transport Commission and its various executives.

On October 1 last year the undertakings of the Northern Ireland Road Transport Board and of the Belfast & County Down Railway were vested in the new Authority. The Northern Counties Committee became the property of the British Transport Commission on the taking over by the latter of the London Midland & Scottish Railway and was purchased from the Commission by the Authority as a going concern for £2,668,000. At an early stage, however, agreement was reached between the British Transport Commission and the former Northern Ireland Road Transport Board, whereby the joint administration of the Road Board and the Northern Counties Railway was established pending the completion of the arrangements for the transfer of the railway. This arrangement was adopted by the Ulster Transport Authority so that, in fact, the Northern Counties Railway was already embraced, in an operating sense, in the Authority.

Suggestions have been made, particularly in the Milne Report on Transport in Ireland, that the Ulster Transport Authority should take over the ownership of the fixed assets of the Great Northern Railway which are north of the Border. The announcement by the Government of the Republic of Ireland that it intends to nationalise transport in the south may make it necessary to await details of the proposals for dealing with that part of the Great Northern south of the Border before it is possible to deal with the portion in Northern Ireland. It is probable, however, that plans are being made against the time when it is possible to deal with the problem of the Great Northern Railway north and south of the Border.

In our September 10 issue we gave the constitution of the Authority. The Chairman is Major F. A. Pope, sometime Vice-President of the London Midland & Scottish Railway, who was Chairman of the Northern Ireland Road Transport Board from the beginning of last year until the U.T.A. was formed. Major Pope was Manager, L.M.S.R. Northern Counties Committee, Belfast, from 1941-43. The other members of the Authority are Mr. W. A. Edmenson, a leading figure in shipping circles, and Chairman of the Northern Ireland Civil Aviation Advisory Committee; Mr. R. P. C. Gotto, a Belfast Harbour Commissioner; Sir Dudley E. B. McCorkell, a member of the Northern Counties Committee, and at one time Mayor of Londonderry; Mr. S. J. McCoubrey, Chairman of the Northern Ireland District of the Confederation of Shipbuilding & Engineering Unions, and a member of the panel for the National Arbitration Tribunal; Lt.-Colonel Viscount Massereene & Ferrard, Chairman of the Northern Counties Committee; Major W. G. Nixon, a prominent agriculturist; Mr. J. S. Rogers and Mr. D. Wilson Smyth, Members of the Northern Ireland Road Transport Board; and Mr. A. E. Swain, a former President of the Ulster Farmers' Union.

In our November 19 issue we gave a portrait and some biographical details of Major Pope, and in our September 24 and October 15 issues we gave the appointments of chief officers and departmental heads, respectively. Elsewhere in this issue we publish an article and an organisation chart explaining the interim scheme of organisation under which the Authority is now operating.

It will be noted that under the Chief Traffic Manager there are three heads of departments, namely, Passenger Manager, Freight Manager, and Railway Operating Superintendent. The division of duties between these officers is unusual, and has been devised on a practical rather than a logical basis. All freight traffic, whether by road or rail, comes under the freight manager so far as the commercial side, as distinct from operation, is concerned. Similarly, all passenger traffic, whether by road or rail, comes under the Passenger Manager. These allocations have been made with a view to the maximum co-ordination. On the operating side different considerations obtained, and it was decided that all rail operations, both passenger and freight, should be placed under a Railway Operating Superintendent, directly responsible to the Chief Traffic Manager, but required to act in conjunction with both the Freight and Passenger Managers.

On the road operation side it was felt that the handling of road vehicles would be dealt with more efficiently, and could not be divorced from commercial control. Therefore, bus operation was placed under the Passenger Manager and lorry operation under the Freight Manager.

This organisation is of particular interest at the present time in view of the endeavours which are being made in many parts of the world to obtain maximum co-ordination of road and rail services. The setting up of the headquarters organisation has now been completed on its interim basis, and it has cleared the way for a further regional and line reorganisation throughout the territory in which the Authority operates. Other developments which aim at making further progress towards complete amalgamation and co-ordinat.on of the transport organisation in Northern Ireland are already in being.

* * * *

Why Nationalise?

THE results achieved from the nationalisation of basic industries must have been disappointing to many of the advocates of State ownership. From the viewpoint of the public weal, neither coal, transport, or electricity have become cheaper, or more plentiful since they passed into State ownership. Compared with pre-war days the reverse is the case. From the viewpoint of organised labour, the much-discussed workers' control has proved largely a myth, and both Government spokesmen and the more responsible trade union leaders have given blunt warnings to the rank and file that they should not pitch their hopes too high in this respect. In the negotiation of agreements governing wage rates or conditions of work there is not much indication that labour is at an advantage in dealing with a State monopoly, as compared with individual employers.

Notwithstanding the inauspicious results which have attended the present experiments in socialisation, the Labour Party is still bent on implementing its policy of State control, and according to reports, those responsible for drawing up plans for the next General Election are suggesting bringing within the net of State ownership a very large range of industries, the principal of which, perhaps, is steel. It is against this background that Lord Brand, a banker and economist of considerable repute, has contribuated an article to the April issue of *Lloyds Bank Review*. As he points out, surprisingly little is said, or written, about why we should nationalise at all. Sometimes the Prime Minister makes a speech, or writes a preface, saying that the arguments for it are unanswerable, but without giving any of them. Recently, however, in discussing the steel nationalisation project, Sir Stafford Cripps referred to the greater diversity of interests between the "perfectly proper drive of the owners to make the greatest profits, and the needs of the nation" and said that what was necessary was to ensure that "the nation's resources are used in the interests of the people as a whole, and not to increase the wealth and power of any particular section of the people." Both Sir Stafford Cripps and Mr. Strauss based their case on the strategic and "planning" need for nationalisation.

These arguments are very different from those the Webbs put forward in 1920 in their book, "A Constitution for the Socialist Commonwealth of Great Britain." Then, nationalisation was supported first on the ground that private ownership resulted in a great waste of productive power; secondly that it was required to diminish the great inequality of wealth; and, lastly, and this was the "central wrong," that the ownership of the means of production gave a power to a tiny majority which reduced the personal freedom of large masses of people to a mockery.

The first argument is still maintained by many, though there is nothing to show that general nationalisation would increase production. For the rest, if the picture given by the Webbs was true in 1920, it is proof of the revolution which has taken place since. Capital may still be very unequally divided, but capital is of little importance, except for the income to be

derived from it. So far as income is concerned, there are no rich men left, for by 1945-46 only 840 persons possessed an income, after deduction of tax, within the range of £4,000-£6,000, while a mere 45 had an income of £6,000 and over. Last September, Sir Stafford Cripps stated that in 1947 dividends distributed after payment of tax totalled £320 millions. Net wages after taxation amounted to £3,260 millions, and salaries £1,435 millions. These two together, therefore, were nearly fifteen times as much as distributed profits. Even if company profits were restricted by 25 per cent., in an attempt at still further income redistribution, the average addition to wages and salaries would amount to no more than 4d. in the £.

No doubt there are some large shareholders and some big companies, but Lord Brand states that he knows of none, except perhaps one or two newspapers, which are controlled or dominated by one, or even a few shareholders. Moreover, shareholders in general are men of moderate means. The average taxpayer pays tax, if his income is all unearned, at an average rate of 4s. 9d., which indicates that he has a gross income of not more than £700 to £900 a year. Finally, and this is what renders so much of socialist teaching worthless, shareholders are not "functionless." It is no doubt the case that, at least until things go very wrong, shareholders do not as a rule exercise effective control over the companies in which they have risked their money any more than taxpayers or even Members of Parliament or, perhaps, even Ministers are able to exercise effective control over the nationalised corporations. Nevertheless, in providing "risk capital" shareholders are performing not merely a valuable, but an essential function on behalf of the community. Lord Brand considers the drying up of such private savings through extreme taxation as one of the real dangers facing the community. Wage earners cannot be expected to, and as a rule should not, risk their savings in the purchase of equities, because the danger of loss is too great.

Lord Brand emphasises that neither public authorities nor financial institutions can provide all the risk capital of the sort needed. In this connection *The Economist* recently commented: "Profits . . . are the income from which industry pays heavily in taxation, from which it attempts to maintain its capital, and which if sufficient is left, it may pay out in part as a reward for risk bearing."

When Sir Stafford Cripps in the steel debate spoke of the "drive of the owners to make the greatest profit" did he mean by "owners" the shareholders, and did he really think that the wealth and power of these small and moderate shareholders really threatened the interests of the nation? Or did he mean by "owners" the boards of directors and managers? Did he believe that managements are guided solely by the desire to make the greatest profits for their shareholders regardless of the national interests? Lord Brand comments that boards of directors and managers must, if they can, make sufficient profits, distributed and undistributed, to maintain the credit of the company, to enable it to raise more risk capital on reasonable terms in future and to put by sufficient to reserve. Two other duties which press on them still more insistently are to satisfy their salaried and wage-earning staff whom, unlike the shareholders, they have always with them, and, lastly, to satisfy the consumer and keep abreast of their competitors.

If the greatest industrial strength from a Governmental viewpoint lies in nationalisation, then Russia must enjoy an immense strategic advantage over both the United States and ourselves. Yet this appears to be completely contradicted by the unparalled strategic achievements of American industry in producing, very shortly after her entry into the war, at the rate of 20 million tons of shipping and over 80,000 planes a year, as well as innumerable quantities of armaments to supply her own country and all the other Allies. As Lord Brand points out, there is now no need for nationalisation merely to destroy the dictatorship of the capitalists. If there is any dictatorship to fear at the moment, other than that of the State, it is that of the trade unions, but nationalisation is surely dangerous for the trade unions of the nationalised industries, for a collision between the State and the trade union is quite a different matter from a collision between a trade union on the one hand and the employers on the other, with the State as arbiter.

Finally, Lord Brand defines very broadly the Government's main duty as to maintain firm the framework within which the bees are to make and store their honey rather than to try to make the honey itself. So precariously are we situated, so dependent on the outside world's buying what we have to sell, that the maintenance of full employment in all circumstances, regardless of the economic conditions that may exist here, or in the world at large, must prove to be beyond the power of any Government to ensure. No British Government can force other countries to buy our products if they are relatively too expensive. It is the task of our Government, above all, so to manage our monetary and budgetary policy as to ensure that our goods are being produced at a cost and of a quality which enables them to be sold. There is enough planning in this task to satisfy the most ambitious planner, even though it may seem less exciting than taking over the control of hundreds of companies and millions of men.

* * * *

British Railways Public Relations

As part of the general process of achieving as great a degree as possible of standardised organisation throughout British Railways, new arrangements recently have been brought into effect for the Public Relations & Publicity activities by the Railway Executive. The principal aim has been to remove certain anomalies which existed as between the establishments and practices of the former railway companies, but at the same time, we understand, opportunity has been taken to effect some measure of economy, both in men and money.

As will be seen from an article elsewhere in this issue, the functional channel from the Railway Executive headquarters to the Regions is being followed, but an attempt has been made to secure as much de-centralisation as possible, and with this end in view the Public Relations & Publicity Officers in the Regions are to maintain close contact, both with their Chief Regional Officers and other Regional Officers. It would be difficult to envisage any other arrangement than this, for in a peculiar way Public Relations & Publicity infringes on almost every other phase of railway activity, and if good results are to be obtained from the new set-up it is essential that the Officers in the Regions should be given as great an opportunity for initiative, and the exercise of their own discretion, as is compatible with the implementation of overall policy.

In accordance with the modern trend, the word "advertising" is to be dropped, except where it applies to external arrangements such as the letting of space at stations and so forth. In general it is being superseded by "publicity." A full definition of the division between "public relations" and "publicity" is given in the article to which reference has already been made. In future, Public Relations and Publicity in the Regions are to be separate departments, but fused in a Regional Public Relations & Publicity Officer, and a similar arrangement obtains at Railway Executive headquarters, for there, the two functional officers—the Public Relations Officer and the Publicity Officer—report to the Chief Officer (Administration), who is directly responsible to the Chairman. This should assure continuity in policy matters, and it is interesting to note how the new organisation dovetails into the management. The Public Relations & Publicity organisation at the Railway Executive headquarters will be responsible for the control of all relative expenditure—the survey of each Region's budget and its aggregation into a whole—for laying down standards, for co-ordinating matters which affect more than one Region, and for undertaking directly all Public Relations & Publicity functions which appertain to the Railway Executive itself.

In the Regions the Eastern and North-Eastern arrangements, which hitherto have been common, have been split, and there are now separate set ups for each Region. In effect, it is the North-Eastern Region which obtains a new office, situated at York. The arrangements for re-organising the staff magazines on a national standard, with Regional news sections, are not expected to be completed before late summer at the earliest, and appointments have still to be made in three cases in this connection.

The new organisation will add to the status of railway

Public Relations & Publicity by giving it a definite niche in the growing list of standardised organisations which the Railway Executive is developing. The set-up has the merit of looking very neat on paper. Whether the streamlining of a service which has to be so personal in its contacts with press, public and traders will work any better than the perhaps rather untidy growths of the old railway companies only time can show.

* * * *

Canadian National Railways

ALTHOUGH 1948 gross operating revenues of the Canadian National Railways, at $491,269,950, were the highest in the company's history, the year ended with a deficit of $33,532,741, after the payment of all charges, as shown in the annual report submitted by Mr. R. C. Vaughan, Chairman & President. The increase in gross revenues was due to rate increases granted during the year, which brought in $53,670,000, but they were swallowed up by a $67,617,363 increase in operating expenses which were $464,739,970, leaving a net operating revenue of $26,529,980. Higher prices for materials accounted for $20,906,000 of this increase, and additional labour costs for $39,100,000, bringing the total to more than $60,000,000.

Operating revenues were $53,071,970 greater than those of 1947. Expenses showed an increase of $67,617,363. In 1947, with $53,000,000 less revenue, net earnings were $14,000,000 more. Though traffic reflected the continued high level of the country's diversified business, it was slightly lower than in 1947, the busiest peacetime year for the railway. Some results for the year are:—

	1947	1948
Route-mileage	23,402	23,400
Passenger train-miles	23,346,277	23,901,589
Goods train-miles	44,027,737	44,982,912
	$	$
Goods revenue	342,582,003	393,544,359
Passenger revenue	43,017,690	41,562,141
All other revenue	52,598,287	56,163,450
Total operating revenues	438,197,980	491,269,950
Operating expenses	397,122,607	464,739,970
Net operating revenue	41,075,373	26,529,980
Taxes, rents, etc.	13,136,223	15,232,870
Interest on public bonds	23,821,910	23,202,818
Government interest	20,002,435	21,627,033
Deficit	15,885,194	33,532,741

Operating conditions were again abnormal, and taxed the energy and resourcefulness of the staff. Maintenance programmes were hampered by shortages of materials. In April serious floods began in the Prairies and affected every division of the railway between Winnipeg and the Pacific. The floods in British Columbia, which began about a month later, at times completely cut off rail service to Vancouver and Prince Rupert. Not only was traffic lost, but the cost of rehabilitating the damaged tracks and structures necessarily affected operating expenses. On August 23 the Bonaventure freight sheds in Montreal were destroyed by fire, involving a loss of about $2,000,000 and increased operating expenses because of the use of temporary facilities. The new and permanent freight terminal on this site, construction of which has been begun, will conform to town planning schemes for Montreal.

Goods carried amounted to 85,240,738 tons, a decrease of 980,541 tons. Revenues were $393,544,359, an increase of $50,962,356. Rate increases in Canada and the United States during the year produced approximately $53,670,000 additional revenue, which was offset by $2,707,644 by reduced traffic volume. Passengers carried, 20,083,064, were 1,143,825 fewer than in 1947. Passenger revenues amounted to $41,562,141, a decrease of $1,455,548.

A wage settlement was concluded on a basis of 17 cents per hour as from March 1, 1948. This increase was extended to employees not covered by wage agreements. The resultant increased charge to operating expenses for the ten months was $33,000,000. Total increased labour cost for the year was $39,100,000. For a full year the cost of the changes in wages and working conditions in 1948 would reach the total of $47,257,000.

Material prices continued to advance and the resultant increase in operating expenses was $20,906,000. Coal alone cost $60,871,000 last year; at the average 1939 price it would have been $31,000,000 less. Softwood sleepers rose in price from 59 cents each in 1939 to $1·35 in 1947 and $1·51 in 1948; hardwood sleepers from 72 cents to $1·45 and $1·67. The price of rails rose from $47·52 per gross ton to $71·37 and $77·41. The largest increases were in car sheathing and bridge timber. The percentage of increase in the former, 1948 over 1939, was 315·2 and in the latter, 316·7.

Depreciation on rolling stock amounted to $17,834,783, an increase of $913,854, because of the acquisition of additional equipment. Eight million dollars were taken from the deferred maintenance reserve and credited to expenses, and the amount remaining in this reserve at the end of the year was $17,000,000. Flood damage added $2,419,000 to expenses, and considerable rehabilitation work remains to be done.

Taxes increased by $431,308 to $10,318,631. Equipment rents (largely hire of freight wagons) decreased by $1,326,402, reflecting a larger ownership of freight equipment and the expeditious return of the cars of other lines. Interest on bonds held by the public decreased by $619,092 and interest due to the Government increased by $1,624,598, giving a net increase of $1,005,506.

Capital expenditure amounted to $64,989,132. The cost of new equipment was $49,184,949, and included 34 diesel-electric locomotives, 6,606 freight wagons, 28 first-class coaches, 10 baggage cars, 10 mail and express cars, 50 express refrigerator cars, 28 work cars. Included in this expenditure were also 56 sleeping cars, purchased from the Pullman Company at depreciated values.

On order are 20 diesel-electric locomotives, 3,499 freight wagons, 25 first-class coaches, 20 sleeping cars, 50 baggage cars and 50 express refrigerator cars, representing the balance of the 1948 programme, and 18 diesel-electric locomotives and 68 refrigerator cars, representing the balance of the 1947 programme.

Eight compartment-observation cars and nine standard sleeping cars were rebuilt and modernised. Twelve other sleepers are being rebuilt, and the 1949 programme includes the rebuilding of 11 more compartment-observation cars. All this work is being carried out in the company's shops. Noteworthy features of the 1948 operations were the introduction of multiple-unit diesel-electric locomotives in freight service between Montreal and Toronto and the entry into service of the new steamship *Prince George* between Vancouver, Prince Rupert and Alaska. The use of diesel-electric shunting engines, which is already firmly established in yard service, has been extended.

The report states that freight rates continue to be a matter of vital concern. The 21 per cent. increase in April, 1948, failed to produce the results intended, and did not provide sufficient additional revenue to offset the still-rising costs of operation. Its effect was to increase the Canadian freight revenues of the system by an average of 18·2 per cent. The average overall increase in the United States rates is 51·7 per cent.

MORE EXEMPTIONS UNDER THE STEEL BILL.—A further reduction is to be made in the number of firms to be nationalised under the Iron & Steel Bill. Mr. G. R. Strauss, Minister of Supply, has given notice to move the deletion of the names of the following companies from the list contained in Schedule 3 to the Bill of companies which fulfil the conditions for the vesting of their securities:—Bayliss, Jones & Bayliss Limited; Carron Company; Clay Cross Co. Ltd.; Darlington Forge Limited; Executors of James Mills Limited; Richard Johnson & Nephew Limited; William Jessop & Company. Two of these firms, namely, Bayliss, Jones & Bayliss Limited, and the Executors of James Mills Limited, are directly controlled by Guest, Keen & Nettlefolds Limited. The Darlington Forge Company is owned by the English Steel Corporation. The following four companies originally included in Schedule 3 have already been deleted: Guest, Keen & Nettlefolds, John Lysaght, Lilleshall Company, and the Staveley Coal & Iron Company. These firms satisfied the Minister that, prior to the publication of the Bill, they had transferred their iron and steel activities to subsidiary companies, and, therefore, did not come within the terms of the Bill. The Minister has also proposed an amendment to Clause 11, which deals with the transfer to the Iron & Steel Corporation of the securities of scheduled companies, to exclude firms whose annual output of each of the scheduled "activities" on October 29 last was less than 50,000 tons, and who did not employ on those "activities" more than 15 per cent. of their total number of employees.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Shunt Field on the Piccadilly Line

London. April 6

To the Editor of The Railway Gazette

Sir,—On page 365 of your issue of April 1, in the item dealing with new tube stock for London Transport, is made reference to "introduction of shunted fields for the motors to speed up the services on the Piccadilly Line."

This should surely be "re-introduction." By 1939, pre-1938 tube motor coaches, except for a few on the Bakerloo Line, were operating with an automatic field-shunting notch. This was added to pre-1930 stock about 1934, and incorporated in all later motor coaches when they were built, these latter including most of those then in use on the Piccadilly Line. Weak-field operation of pre-1938 stock ceased soon after the commencement of the war and has not yet been restored.

In the interests of accuracy it should be pointed out, therefore, that weak field was introduced on the Piccadilly Line in 1931-2 by the Underground, predecessor of L.P.T.B., and even more so of the L.T.E., which latter body is merely restoring, in this instance, a feature introduced by a non-nationalised concern.

Yours faithfully,
ASTECH

Standardisation in Excelsis

London. April 10

To the Editor of The Railway Gazette

Sir,—In your issue of March 4 you published a communication under the above heading which questioned the wisdom of adopting a heavier standard track for British Railways at the present time, when steel is scarce and maintenance in arrears. Before rails of the new pattern had been rolled or the design of their fastenings settled, those responsible for the change assumed that they were setting up a fresh standard which would endure for an indefinite length of time. The proceedings of the American Railway Engineering Association show that the U.S.A. railways, which have used flat-bottom rails for generations, are not agreed about track standards. In an address to the Association last month Mr. Ralph Budd, President of the Burlington, remarked that many problems first encountered by railway engineers were still before them. Such matters as the kind and size of sleepers, and *the best rail sections and fastenings to use*, were among the things to be determined in the old days and are among the important problems today.

Mr. Budd had a distinguished career as an engineer before he took charge first of the Great Northern and then of the Burlington, so that he speaks with authority. When matters stand in the States as he says, is it likely that our engineers can have hit on a perfect rail section and fastening straight-away?

Yours faithfully,
YOUR CORRESPONDENT

New London Services and Outer-London Lines

The Railway Club,
57, Fetter Lane, E.C.4. February 11

To the Editor of The Railway Gazette

Sir,—With reference to the Rev. R. G. R. Calvert's letter in your issue of January 28, I would be in favour of the proposal to establish an electric service from Clapham Junction *via* Addison Road to Edgware Road, but I would extend the electrification further north to an exchange station with the Watford electric line at Willesden.

Such a scheme would provide a useful link between the Southern Region and the Western and London Midland Regions, and in addition to the normal everyday traffic, which would be attracted if the trains were sufficiently frequent, it would serve exhibitions at Olympia and football matches at Chelsea.

As things are today, Addison Road, once a busy passenger station, seems to have inherited blight from its ancestor "Mr. Punch's Railway."

If Mr. Calvert's Staines-Rickmansworth proposal was thought economic, which I doubt, it could be extended north-circular-wise *via* the existing Watford-St. Albans-Hatfield lines instead of *via* Hemel Hempstead and so avoid the difference of about 100 ft. in altitude between the old Midland Railway and Great Northern Railway at Harpenden.

As regards Mr. Calvert's major proposal, I would suggest that we are not sufficiently hard-up to consider incurring the expense of eliminating Euston and diverting its traffic to an enlarged Kings Cross-*cum*-St. Pancras or Paddington.

Incidentally, however, if, as in New York, main approach lines were electrified for a certain distance from the metropolitan terminus, Mr. Calvert's enlarged Kings Cross-St Pancras Station could be a double-decker with an upper level for trains whose course was over, and a lower level for trains whose course was under, the Grand Union (*né* Regent's Canal).

The completion of the suspended widening works between Harrow and Moor Park might be rendered permanently unnecessary if (on the assumption that it would not overtax the resources of Paddington) Mr. Calvert's proposal to reduce Marylebone to suburban status was adopted.

Yours faithfully,
KENNETH BROWN,
President

Elastic Spikes

Little Orchard, London Road,
Datchet, Bucks. March 25

To the Editor of The Railway Gazette

Sir,—Referring to the letter in the correspondence columns of your issue of March 11 from the Chief Engineer of a Norwegian so-called "Holmenkollen Railway" regarding a very successful experience with an elastic spike, it may enable a clearer view to be taken of the incident if it is pointed out that this system is not a "railway," but an electric tramway of a few km. in length.

Yours faithfully,
C. G. CUMMING

Passenger Fares and Train Services

113, Millburn Avenue,
Clydebank. February 12

To the Editor of The Railway Gazette

Sir,—I would like to make some counter-proposals to the points raised in your January 28 issue, in the article by your correspondent on the question of passenger fares.

The number of "prestige trains," such as the "Coronation Scot," etc., run pre-war was strictly limited, owing to the intensity of working of the main lines. I would assume that this always will be the case. Apart from these special trains, I am opposed to the idea of extra fares for express services, for these reasons:—

(1) It would require duplication of most main-line services, to provide adequate connections for both classes of passenger.

(2) With the exception of ultra-high-speed services, where special traffic arrangements are necessary, it remains to be proved that it costs more to convey a passenger by an express train. I would think that, as the length of time block sections are occupied and rolling stock is in use determines a fair proportion of the cost of transportation, the additional wear and tear of the track due to express speeds would be balanced.

(3) Charging what the traffic will bear is a sound principle, but should not be applied when it results in an inefficient use of material resources. If a passenger travels from Glasgow to Carlisle by a train calling at all stations, when a non-stop service is available, he is not making the best use of the rail services, and the position is just as silly as the present spectacle of people jostling for crowded buses when the trains that could carry them more efficiently run empty.

As an alternative, I suggest that the whole idea of a rigid system of fares based on mileage should be scrapped, and the local traffic managers, who know their public, should be called on to fix fares. The only governing principle would be the empirical one of what is "best for business." I see no reason that the fare from A to C *via* B should be the sum of the fares from A to B and from B to C, provided that a change of carriage is not usually required at B, and the passenger can save by re-booking.

This would overcome many of the difficulties in equalising road and rail fares. Where the buses have captured most of the traffic, and the public thus has acquired a prescriptive right to cheap transit, the new fare common to road and rail should differ only slightly from the present bus fare.

As your correspondent states, it may be expedient to have only one class of travel on local trains. I would suggest three classes: "Ordinary," "First Class," and "Pullman." Normal express trains would convey ordinary and first class passengers, and "prestige trains" Pullman and first class. Local services would provide "ordinary" accommodation, and everywhere bus fares and ordinary rail fares would be equal and tickets fully inter-available. The fares between the chief travelling places would be rounded off, say to the nearest sixpence, to facilitate the selling of tickets.

A feature of the pre-war fare structure was bewildering

multiformity and I think it defeated its own ends, as few members of the public were continuously aware of all the many facilities open to them. A simplification would save administrative costs, and commend itself to the public.

First, for short distances—up to, say, 10 miles—only single tickets would be issued. The public, however, could buy tickets in pairs or in batches in book form. It would simplify booking procedure, and be of convenience to the public. Some people would not be bothered storing away a return half worth a few coppers during, say, a hectic shopping expedition, and the traveller may not wish to return by the same means of transport or from the same point, and interavailability arrangements would be clumsy for such short distances.

For all other journeys, I would crystallise the traditional policy of railway undertakings to divide travellers into classes according to the length of time to be spent away from home, by issuing just two types of tickets between any two points. The "green" ticket would be a monthly return, and the "red" ticket a day return. A passenger would use a "red" ticket for a single journey, and the ratio between red and green fares would not be a constant quantity, but would be adjusted to suit "good business."

As many people can travel for pleasure only at week-ends, the railways should be prepared to absorb the peak load, and passengers should be allowed to spend Saturday night away from home on a red ticket. Possibly the facility could be extended to Friday and Sunday nights.

The term "day return" could be interpreted to mean a journey where the time spent at the destination lies within one day. This would enable a trader to travel overnight from London to Glasgow on a red ticket and return the next night. It would encourage night travel, which, I presume, utilises rolling stock that otherwise would stand idle.

Freed from the mileage basis, a tapering fare structure for green tickets could be instituted, offering a slightly lower rate per mile for longer journeys.

I trust that these remarks are a useful contribution to this controversial subject.

Yours faithfully,
KENNETH F. BROWNE

The Hotels Executive

The Hotels Executive, British Transport,
222, Marylebone Road, London, N.W.1. April 12

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The Hotels Executive would be obliged if, when referring in your publication in future to hotels owned by the former railway companies, you would note that they are now controlled by the Hotels Executive of British Transport and not by the Railway Executive or by British Railways.

Yours faithfully,
W. H. JOHNSON,
Secretary

American Experiences of British Railways

130, Southport Road,
Liverpool, 20. April 3

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I am enclosing a booklet entitled "What, no ice?" issued by British Railways in America. It is amusing and should be a help to Americans visiting the British Isles.

Originally I saw an advertisement for this booklet in *The New Yorker*. When I wrote for it I pointed out that Americans would be sadly disappointed in our railways were they to suffer from the experiences of those who arrived on the *Britannic* at Liverpool and were travelling to Scotland just before Christmas. I travelled with three of them and they would have had a miserable time indeed but for my flasks of brandy and black coffee. It was a night train and should have been at the platform about an hour before starting, but, in fact, arrived only ten minutes before its scheduled departure time and actually left Liverpool twenty minutes late. Heat did not start to come into our carriage until we had been travelling about half-an-hour.

During the night I met other Americans in the corridor and they wanted to know whether the water in the lavatory was drinkable and if there were any cups. People, many of them Americans, were standing most of the night in the third-class corridors. At Carlisle it was impossible for many people to obtain refreshments because of the crush at the counter. Also, in my letter, I quoted my sister-in-law who was over here from Canada in the summer. One of her journeys was from Kings Cross to Edinburgh and she remarked: "I don't think much of your railways, Dick. I have never travelled in such a filthy train in my life."

The booklet arrived and, with it, a letter to say that my remarks had been passed to headquarters in London. On the same day a Railway Service Representative called to see me. He requested, and I gave him, dates, times, and details of my complaints. I thought this was really good service and spoke well for the future of British Railways—especially if this spirit eventually were to pervade all ranks.

Yours faithfully,
G. RICHARD PARKES

The Late Mr. S. L. Glenn

Lamp Manufacturing & Railway Supplies Limited,
River Plate House,
12-13, South Place,
London, E.C.2. April 8

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—I have just read the report in the Railway News Section of *The Railway Gazette* for April 8 of the career of my old friend and colleague, the late Mr. S. L. Glenn. You state "He joined Evans O'Connell & Company, founders of the well-known Signalling Works at Chippenham, in 1898." *Sic transit*, etc. Those who, like myself, knew the late John Patrick O'Donnell, who, in partnership with the late Arthur G. Evans, founded the Railway Signalling Works at Chippenham, will find it difficult to believe that his name and personality are so completely forgotten.

Yours faithfully,
CHARLES F. MINETT,
Managing Director

[We are reprinting the above letter, which appeared in our April 15 issue, because, after the issue had been passed for press, the printers' reader, without reference to the original manuscript, altered the name O'Donnell to O'Connell.—ED., *R.G.*]

Major Developments in Locomotive Design

61, Rupert Street,
Glasgow, C.4. February 17

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—The subject of major developments in locomotive design is one on which opinions are liable to differ violently, but it will be readily admitted that Lt.-Colonel Harold Rudgard has chosen a very fair selection in his list published in your February 11 issue. There are, however, several noteworthy improvements which might well be added, and I give herewith some which are worthy of a place.

1845. Dial pressure gauge, Sching, in Germany.
1860. 4-4-0 on Stockton & Darlington Railway. (William Bouch.)
1862. Steel boilers used on Maryport & Carlisle Railway. (George Tosh.)
1871. 4-4-0 with inside cylinders and inside frames. North British Railway (Thomas Wheatley.)
1874. Steam reversing gear on G. & S.W.R. (James Stirling.)
1889. 200 lb. pressure on Caledonian Railway. (Dugald Drummond.)

In addition, there are several errors in Lt.-Colonel Rudgard's list, and for the sake of accuracy a list of corrections is appended under the dates quoted by him:

1832. Steam brake not used until 1833.
1846. G.W.R. 4-2-2 built in 1847.
1847. Balanced slide valves were first used by John Gray on the Liverpool & Manchester Railway about 1838.
1856. Screw reversing gear (A reference to Mr. J. F. McEwan's articles on the Caledonian *Locomotive*, July, 1943, page 106, will show that screw reversing gear had been in use on the Aberdeen Railway several years previously.)
1859. Brick arches were used by Thos. Yarrow on the Scottish North Eastern from about 1857.
1864. Radial axleboxes were first fitted on St. Helens Railway in 1863.
1867. Long travel valves (about 6 in.) were used by John Gray on the Hull & Selby, 1840.
1868. Counter pressure brake with water injection used by F. Holt on South Staffordshire Railway, 1856.
1871. The Westinghouse straight air brake was tried on the Caledonian in the year given. The Steel-McInnes was not used until 1873.
1872. Belpaire firebox. Flat topped casings used by Bouch on S. & D., 1866.
1874. J. Ramsbottom used speed indicators prior to 1861.
1889. Date of G.N.S.R. tenders 1890.
1893. Oil fuel had been used in Russia by the Scottish locomotive engineer, Thomas Urquhart, previously to 1889.
1897. The C.R. Dunalastair class, start of the large boiler era, came out early in 1896. J. F. McIntosh did not die until 1918.
1903. Hoy's 0-8-0 with corrugated firebox came out in 1902.
1912. Mechanical lubricators were in extensive use before this date. I am not aware who was the first locomotive superintendent in the British Isles to fit them, but Ivatt on the G.N.R. was using Klinger pattern about 1908, and they had been used on the Continent at an earlier date.

Your own remarks on the three-cylinder simple prompt me to say that you might well have mentioned the Great Central Atlantic No. 1090 of 1908. Regarding feed water heating, I would suggest that exhaust steam injectors provide all that is required in this direction with fewer complications and less weight.

Yours faithfully,
MONTAGUE SMITH, JNR.

The Scrap Heap

French "On Time" Record

French express trains are upholding their reputation for keeping good time. Engine drivers throughout France established a record for punctuality on March 28. The S.N.C.F., after a close scrutiny of the times registered by about six hundred expresses and *rapides* that day, was able to announce that not one was a minute late in arriving at its destination.

* * *

To Make Honesty Pay

Sydney, N.S.W., is seeking the advice of London Transport experts on the best methods of collecting tram fares, and so preventing a loss, estimated at £800,000 a year, incurred through the dishonesty of the passengers.

The suggested remedies are not likely, perhaps, to include a scheme which was reported to have been tried with some success 30 years ago in Mexico City.

As an inducement to paying fares, the tramway company instituted a monthly lottery, for which every tram ticket above a certain value ranked as a coupon. Though the prizes cost several thousand dollars a month, the directors were amply recouped by increased takings.

It was noted, also, that not only did more persons use the trams and pay their fares, but that, as passengers were careful to retain their tickets instead of dropping them on the floor, dishonest conductors were no longer able to pick up used tickets and re-issue them for their own profit.—*From "The Scotsman."*

* * *

Four Locomotives—One Train

Below we reproduce an illustration from the *Southern Region Magazine* which shows three locomotives heading an up Continental express, assisted in the rear by another locomotive, on the 1 in 30 gradient from Folkestone Harbour up to Folkestone Junction. The locomotives are Stirling "R1" class tanks, built between 1888 and 1898, and subsequently rebuilt by Wainwright, and the most powerful allowed on the branch. The train is passing over the bridge connecting the harbour station with the shore.

100 YEARS AGO

From The Railway Times, *April* 21, 1849

MIDLAND RAILWAY.

RESIGNATION OF MR. HUDSON.

A special general meeting of this Company took place at Derby, on Thursday last, in pursuance of a requisition presented to the Directors from the Liverpool Committee of Shareholders, for the purpose of appointing a Committee of Investigation, to examine into, and report upon, the management and affairs of this Company. The meeting excited the greatest interest, and we never witnessed a more numerous gathering of shareholders than was the case on the present occasion. Speculation was busy as to whether Mr. Hudson would attend the meeting, but the opinion prevailed that he would not "show," which, upon our reaching Derby, we found had been reduced to a positive certainty. That gentleman, however, arrived at Derby on the previous day, and took up his quarters at the Midland Hotel, and we are informed that during the meeting he was within the precincts of the station, having expressed a readiness to come forward in the event of any explanations being required, which, from the position he has held in the Company, he might be supposed best calculated to afford, but, as it will be seen by our report of the proceedings which follows, no occasion arose for his attendance. On the evening previous to the meeting a very lengthened interview took place between the Deputy-Chairman and other members of the Board, and Mr. Wylie, and Mr. Elias Mozley (the leaders in the investigation movement), and other members of the Liverpool Committee, relative to the gentlemen whose names should be selected to form the Committee. A satisfactory arrangement was come to on that point, and the list to be submitted to the meeting having the approval of both parties, as was anticipated, a very amicable, peaceable, and business-like meeting was the result.

The meeting was held in the spacious goods shed contiguous to the station, which had been comfortably fitted up for the occasion, affording accommodation for upwards of 1,000 proprietors, and we calculated but few short of that number were present. Mr. John Ellis, the Deputy-Chairman of the Company, presided. We may add that free tickets were granted over the Midland line to the shareholders who desired to attend the meeting.

Porters Must Look before They Slam the Doors

Railway porters must not slam carriage doors unless they are reasonably sure that all passengers have alighted.

If they do, and there is an accident, the Railway Executive will be liable in damages, the Court of Appeal has ruled.

A woman whose hand was crushed when a porter slammed the door at Hirwaun Pond Halt, Glamorgan, on October 30, 1947, appealed against a Glamorgan County Court decision that negligence had not been established.

Judgment was entered for her for £38.

* * *

"Coal Board Mentality"

Major S. Walton-Brown, formerly Managing Director of Seghill Collieries Limited, Northumberland, in his presidential address to the third annual conference of the British Association of Colliery Management at Llandudno, said that the National Coal Board showed a lack of humanity in its dealings with management and staff. Under private ownership letters of appointment were friendly and intimate and contained all the details. Now they were stereotyped and impersonal, often with incomplete information. There was "a general atmosphere of distrust and of caution in speech between one person and another" which never existed before.

As an example of "Coal Board mentality" he quoted the case of an energetic owner who had given salary increases to his staff because of increased output during the war. The N.C.B., while admitting that the pits had the best output in the district and that their financial results compared well with others, decided to reduce salaries, which in no case exceeded £1,000. "Is this the way to get more coal?" he said "I call it stark lunacy."

He described the case of a man whose notice, given without warning, expired one month before he would have completed the 10 years' service necessary to obtain benefits under the redundancy regulations. The Board refused to allow him to serve the extra month and the man was now without benefits.—*From "The Times."*

* * *

Rush-Hour Rhymes

THE LEPER!

We view him with loathing,
We draw back our clothing,
Our usual humour, so mild and so mellow,
Disperses at sight of the pestilent fellow.
What right has he got to come pushing in here?
He can't be a gentleman, that's very clear,
And, oh, how we hate him,
Belabour, berate him
Inside us, and yet not a clue in respect to
Our thoughts would we give, which the chap could object to.
He rouses our ire,
This social pariah!
He's probably quite a good husband and father,
But, when we first see him, we feel that we'd rather
He'd take himself elsewhere, not come barging in
Where angels would think such behaviour a sin.
If thoughts could undo him
Old Nick would pursue him,
But still he comes on, disregarding our barrage—
The monster who claims the last seat in our carriage!

A. B.

Triple-Headed Boat Train

Three 0-6-0 tank locomotives hauling an up Continental express, also banked in rear, up the gradient from Folkestone Harbour

Photo] [N. P. Hucksteppe

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

New Tugs

An order has been placed with Ferguson Bros. Ltd., of Port Glasgow, for two oil-burning tugs at a total cost of £460,000. They will have an operating range of 2,000 miles using a moderate h.p. of 1,700, although their indicated h.p. for shorter range will be 3,000, and they have been specially designed for South African conditions. Their dimensions are: length, 165 ft.; breadth, 33 ft. 6 in.; moulded depth, 17 ft. 6 in.

A new coal-burning tug is being built at Bristol by Charles Hill & Sons, at a cost of £197,000. Its length will be 151 ft. and it will develop 2,500 h.p.

VICTORIA

Ashburton—Alamein Line

In our issue of October 8, 1948, we recorded the opening of a ¾-mile extension in the Melbourne electric suburban area from Ashburton to Alamein to serve new housing estates. This is a resuscitation of part of the southern section, derelict for many years, of the Melbourne "outer circle" line (opened in 1891 to keep Gippsland goods trains clear of the congested lines at Flinders Street). The northern portion of this line, which remained open for goods traffic between East Kew and Riversdale until early in the war, has been dismantled. The central section between Riversdale and Ashburton was electrified in 1926.

Left: Derelict section of Melbourne Outer Circle line south of Ashburton in 1941

Right: A recent view at about the same spot showing re-opened line and new station of Alamein

Photos] [G. Bakewell

NEW ZEALAND

British Coal Shipments

More than 30,000 tons of British and South African coal ordered by the New Zealand Railways Department is expected in the Dominion within the next few months. The shipments to arrive include 9,000 tons of Midlands coal and 8,000 tons of Welsh coal.

CANADA

Rolling Stock Orders

Orders for construction of more than 1,000 freight wagons have been placed in the Maritime Provinces by the Canadian National Railways. Equipment on order from the Eastern Steel Car Company includes 500 triple hopper wagons and 500 gondola wagons for delivery this Spring or early summer. The C.N.R. has begun a "multi-million dollar" construction programme in its Atlantic region shops. Work will include the building of dining and sleeping cars, refrigerator vans, and freight wagons.

ARGENTINA

"Mileage Tickets" for Government Departments

As from March 1 the Ministry of Transport has authorised the railways to introduce a new system of dealing with travel over their lines by employees of other Government departments on official business. This involves the issue of "mileage tickets" at a flat rate of six centavos per km. (about 1¼d. per mile at the present rate of exchange). These tickets allow for travel over a specific number of km. (usually 20,000), and are available for use by any employee of the department purchasing the ticket, which is in the form of a booklet containing 100 counterfoils in duplicate. Each time it is used, the number of km. corresponding to the journey is deducted from the total entered in the booklet according to the last annotation, and the duplicate is used as a voucher in the station accounts. The ticket also allows for the payment of beds, Pullman seats, excess luggage, etc., at the full public rate.

Building Plots for Railway Employees

The Ministry of Transport has under consideration a plan for the sale of surplus land not required for railway purposes to railway employees and workmen to facilitate the building of their own houses on easy terms.

Completion of B.A. Provincial Branch

The new branch of the Buenos Aires Provincial Railway between Olavarria and Loma Negra (see our issue of December 19, 1947) has been completed and was inaugurated officially on March 25.

Transport Secretariat becomes Ministry

The new Constitution of the Republic, recently sanctioned, provides for 20 Ministries of State, among which is that of Transport. Lt-Colonel Juan F. Castro, now Minister of Transport, has been at the head of this department since it was created in July, 1948, as State Secretariat. The new Ministry is responsible for the operation of all State-owned transport, including the recently-acquired railways, and for the control of all other forms of transport within the national boundaries.

POLAND

New Vistula Bridge at Warsaw

It is expected that the new combined rail and road bridge over the Vistula connecting Warsaw with its suburb, Praga, will be completed about July. In its construction some 7,500 tons of steel sections, rolled in Polish mills, have been used.

ITALY

New Station Opened at Verona

The two stations at Verona, Porta Nuova and Porta Vescovo, were targets of particular importance for the Allies during the war, as Verona, on the main lines from Germany to Italy (Brennero—Bologna) and Milan to Venice, was a focal point in the Italian supply system. Both stations with their extensive marshalling yards were devastated, and eventually the large Porta Nuova Station building, a modern structure opened on March 6, 1922, was totally destroyed by an Allied air attack. In 1922, with the building of the new main station (Porta Nuova), the old Porta Vescovo Station was reconstructed and modernised as part of a large-scale development scheme which, after more than two years of work, resulted in Verona owning the then most up-to-date Italian station building (Porta Nuova), as well as most modern goods yards and marshalling yards at both Porta Nuova and Porta Vescovo.

After more than four years of rehabilitation the reconstruction at both stations is still not complete, though in an advanced stage. When in full working order the tracks at both stations will total 52·7 miles. The reconstruction of the new station building at Porta Nuova, opened on March 24, cost lire 450 million (approximately £225,000), and the new formations for the goods and marshalling yards lire 115 million. Other items were: reconstruction of the locomotive running repair shed at Porta Vescovo Station, lire 550 million; reconstruction of houses for railway personnel and their families, lire 550 million; reconstruction of the main line between Porta Nuova and Porta Vescovo Stations, lire 165 million; reconstruction of the connecting loops between Porta Nuova Station and the lines for Bologna and Modena, lire 315 million.

The completion of the work in hand will bring the total expenditure to some lire 2,930 million (approximately £1,465,000, almost wholly financed by the E.R.P. lire fund). At the opening of the new Porta Nuova Station buildings Signor Luigi Einaudi, the President of the Republic, was present, with Signor Corbellini, the Minister of Transport.

FRANCE

Parcels Traffic

Parcels traffic has shown some falling off recently, according to press statements. During the week March 12-18, S.N.C.F. receipts from this traffic totalled fr. 188,120,000, against fr. 195,027,000 during the corresponding period in 1948. In reality, it is stated, the decline is much more, taking into account the depreciation of French money during the year. The decrease is attributed first to the increase of 30 per cent. in the transport tariff and secondly to the general improvement in the food situation, which has led to a reduction in the number of family food parcels sent from country districts to the towns.

Importation of Freight Wagons

Under the terms of the Marshall plan, 2,500 twenty-ton freight wagons have been received from the United States. The wagons were transported in parts, ready for assembly, by the Liberty ship *Saint Malo*, of the Compagnie Générale Transatlantique. The cargo was discharged at Cherbourg on March 28.

At a Franco-American ceremony and luncheon, held at the Cherbourg Chamber of Commerce, to mark the occasion, Mr. David K. Bruce, head of the European Co-operation Administration in France, said that it was already certain France would win the battle for her economic recovery. Her natural resources, her own qualities, the mutual aid of the countries who are beneficiaries under the Marshall plan, and her own long-term recovery plan were all contributing directly to the end in view. The party visited the assembly shops and saw how speedily the wagons could be assembled for immediate service.

JUGOSLAVIA

Construction in Macedonia

The Skoplje-Gostivar section of the 145¼-mile narrow-gauge line Skoplje-Ohrid is being converted to standard gauge, a project which dates from before the war. The present gauge is 1 ft. 11½ in., and the distance between Skoplje and Gostivar is 41·6 miles (67 k.m.). From Skoplje the narrow-gauge line parallels the standard-gauge line Skoplje-Kosovo Polje-Kraljevo as far as Gorce Petrov (3·1 miles) where there is a joint station. From Gorce Petrov, the narrow-gauge line turns westwards and subsequently south-westwards. At Podmolje, a branch runs westwards to Struga, 4·2 miles, on the Albanian frontier. Struga has been envisaged as the junction with the Albanian line which it was intended to build from Elbasan before differences arose between the two countries. The location of the line will be found in the Jugoslav railway map published in *The Railway Gazette* for September 8, 1944.

GREECE

Re-purchase of Compagnie Franco-Hellénique

The negotiations between the Government and the Compagnie Franco-Hellénique de Chemins de Fer, mentioned in our issue of March 25, resulted in an agreement whereby the Hellenic State will repurchase from the company both its concession and all assets relating to the working of the system. The terms of the agreement will be made public shortly, when the board will submit it to an extraordinary meeting of the shareholders for their approval. At the same time, the company's share capital will be increased from fr. 25 million to 30 million.

Publications Received

Principles and Practice of Radar. By H. E. Penrose. London: Geo. Newnes Limited, Tower House, Southampton Street, Strand, W.C.2. 8¾ in. × 5½ in. × 1¼ in. 692 pp. Illustrated. Price 42s.—Techniques developed for aiding navigation or giving warning of aerial attack have found applications in industrial electronics far removed from those once comprised within the word "radar." The cathode ray tube is seen in railway workshops for detecting flaws in axles, and is used by at least one railway administration for locating breaks in telegraph circuits. Special types of oscillators which owed their design to the necessity of using ever higher frequencies in wartime radar have been applied to railway communication in the United States, and their adoption brings the whole science of waveguides and special aerial systems into the province of signal and telegraph departments. Ordinary navigational radar is being employed increasingly in railway shipping and ferry services, and at harbours and docks. These examples, without indulging in any speculations about the future of railway signalling, form a sound argument for an understanding of radar principles among those concerned with railway and associated communication facilities.

The author of this book has collected into a convenient and well-indexed form a mass of information that otherwise would be accessible to the student only after considerable labour. Here are all the fundamental principles which, applied in numerous combinations, produced the somewhat bewildering variety of radar equipment of which the public outside the Services became suddenly aware when wartime security was relaxed. The arrangement of the book presupposes a knowledge of normal radio principles, but recapitulates sufficient of them to smooth the transition to an understanding of how they are modified for radar purposes. In its final stage the book deals with the entirely new technique required for the use of frequencies above the region of 400 Mc/s. Every chapter is copiously illustrated with diagrams and drawings of apparatus, and not only are the numerous basic circuits clearly drawn, but important elements are annotated to save the student the necessity of repeated references backwards and forwards between the drawing and text.

The Newcastle & Carlisle Railway, 1825-1862. By John S. MacLean. Published by the author at 5, Lindisfarne Road, Jesmond, Newcastle-upon-Tyne. 10¾ in. × 6¾ in. 121 pp. Illustrated. Price 25s.—It is somewhat remarkable that the first lengthy and important railway to be authorised after the Liverpool & Manchester has remained until now without a full-size history, and with a very limited list of literature, even in article form. The Newcastle & Carlisle Railway was projected in the very early days of railways, and, when the company obtained its first Act, on May 22, 1829, the project comprised a line of the hitherto unprecedented length of 63 miles. The locomotive was still regarded as a nuisance and a public danger, and it was proposed to work the line with horses. Such were the rapid advances in engineering design, however, that locomotives were introduced when the first section of the railway was opened, in 1835. An irate landowner thereupon secured an injunction against the company, and an Act of Parliament was required to regularise the position. Besides being the first railway across Great Britain, and having the greatest route-mileage until the London & Birmingham Railway acquired that distinction, one of the Newcastle & Carlisle Railway's chief claims to fame was the invention by Thomas Edmondson, at Milton Station, in 1837, of his system of printed cardboard tickets, racks, and dating press. It is also worthy of note that right-hand running was in force throughout the independent life of the company, and was not abolished until after the amalgamation with the North Eastern Railway, in 1862. The company prospered throughout its independent career and made but relatively minor extensions to its original trunk system, totalling only 80 miles when the N.E.R. took over. Mr. MacLean has recorded the history of this pioneer railway in great detail. Separate chapters are devoted to engineering works, locomotives, rolling stock, and train services. The illustrations are excellent, and include reproductions of early and recent views on the line, official notices, maps and plans, gradient sections, and early locomotives and rolling stock.

The Railway Woman's Annual, 1949. London: 10, Vernon House, Sicilian Avenue, W.C.1. Obtainable through railway bookstalls and also from the Editor, Thomas Ashcroft, 40, Brentmead Place, N.W.11. 7¼ in. × 5 in. 64 pp. Illustrated. Paper covers. Price 2s. 6d. net.—Although more than 50,000 women are employed by British Railways and London Transport there has hitherto been no regular publication catering specially for them. "The Railway Woman's Annual" is an attempt to remedy this deficiency and provides much useful information about the place of women in the industry and about their particular interests. The sections deal with welfare, trade union membership and negotiation, the N.U.R. Women's Guild, convalescent homes for railwaywomen, national insurance, wage rates, women's place in the catering and hotel services, gardening, "home hints," and holiday accommodation. An appeal is made to the railway women to make the reputation of the British railwayman her inspiration and to try to carry a good name into every function of her daily work. It is hoped that the information and advice contained in this little book will stimulate their interest and pride in the part they are playing in the industrial effort.

Swedish Lloyd Sailing List.—We have received from the British & Northern Shipping Agency Limited, Marlowe House, Lloyd's Avenue, London, E.C.3, a copy of the Swedish Lloyd sailing list for the summer season. This attractive booklet gives particulars of sailings between Tilbury and Gothenburg, and accommodation on the *Saga*, *Britannia*, and *Suecia*, as well as a number of paragraphs on such matters as currency, customs, luggage, and through fares.

Compression-Ignition and High-Pressure Steam

Suggested combination of steam and diesel power for locomotive propulsion

(From a Correspondent)

THE writer feels and has felt for some time that there is merit in the combination of compression ignition and steam power for locomotive propulsion. On occasion he has raised the point in discussion, and during the war he included it in the discussion on a paper on diesel locomotives, where it was treated by the author in a very cavalier manner. This attitude rankled, as not only was it a somewhat laborious job to get such matters approved by authority, but, in addition, sweeping statements such as "Not worth consideration" require wide knowledge, and those possessing such knowledge usually give reasoned criticisms.

The writer is fully aware of the attempt made by the late Mr. Kitson Clarke to adopt the Still system to a railway locomotive and has no doubt that the failure of this experiment is considered a potent argument against the steam-diesel idea. Surely, however, the scheme was foredoomed to failure because the approach was incorrect; the Still system requires a constant maximum load among other things. The late Mr. Henry Ford, in his book, "My Life and Work," recounted that in the Ford business, no record of experimental failures was kept, as failure might have been due to the wrong approach made to the problem. The writer admits that it was Mr. Kitson Clarke's work that set him thinking and he remains convinced that there is merit in combining a high-pressure high-speed steam engine with a high-speed compression-ignition engine and by so doing, eliminate change-speed gearing, or electric transmission.

Direct-Drive Sulzer Locomotive

Students of the history of the diesel locomotive doubtless will remember the direct-drive Sulzer locomotive, in which the train was started from rest by using the engine as a compressed-air motor and then going over to oil. This was a bold concept, but one can well imagine the amount of air required to bring about regular firing in the cylinders. The Kitson Still locomotive made use of the same, or a similar idea, by starting the train as a steam engine, then going over to oil engine *plus* steam engine, and finally, in favourable circumstances, running as an internal-combustion locomotive, with steam assistance from the boiler operated as a waste-heat steam generator. In both the Sulzer and Kitson Still, the drive was direct, no change-speed gears being interposed between engine and wheels.

Considering the Kitson Still locomotive in the light of present-day steam generator practice, the author cannot but feel that it would have been difficult to provide a more unsuitable steam generator for the purpose than the one chosen, but no doubt the choice was made largely as a result of the limitations imposed by the Still system.

The writer feels that the choice of steam generator will be restricted to the plain monotube type popularly known as the Semi Flash, or, alternatively, to an adaptation of the Herreshoff system, better known in its modern reincarnation as the La Mont. It would appear not unlikely that the forced-circulation steam generator, incorporating a certain steam/water reserve in a drum, would give the best results, as a section could be situated in the exhaust pipes of the diesel engine. By this means, steam storage could be maintained while the train was being handled entirely by the diesel engine.

The basic idea that the writer has in mind, is that the diesel engine shall drive the wheels through gearing, with a hydraulic coupling interposed. Reversing the locomotive would be by gearing, and the whole system would be controlled by oil operated clutches. The gear ratios would be arranged so that the required load behind the engine could be handled by the diesel engine alone, under certain conditions of gradient. During this period, the steam engine would be out of action, full boiler-pressure being maintained by waste heat from the exhaust of the engine. It will be noted, however, that the reasonable temperatures of the exhaust gases would enable steam pressure to be controlled by stopping the forced circulation, or by short-circuiting the waste-heat generating coils. The balance of the steam generator, heating surface would be provided by coils heated by an oil burner of the automatic type, cutting in and out on the fall and rise of the boiler pressure.

It will be appreciated there are several arguments in favour of the combination of a steam engine with a diesel engine, and apart from the assertion referred to earlier in this article, the main objection naturally lies in the greater cost of obtaining one b.h.p. hour by steam, as compared with that obtained through the medium of the compression ignition engine. The latter objection would be potent if it was proposed to run the steam engine continuously, but the idea is to use the steam component to bring the action of the compression ignition system up to the characteristics of the steam locomotive. Possibly the best way of illustrating the point, would be to liken the effect of coupling in the steam unit, to the action of the driver of the steam locomotive in increasing the period of steam admission as the load increases, or when getting his train under way.

The writer toyed with this idea in 1929, at a time when many progressive persons connected with the smaller locomotive building firms were wholly occupied in the possibilities of diesel locomotives. At this time, after a long spell of work in Sentinel locomotives, the writer had struck out a new line on small, geared steam locomotives, the chassis of which also was used for a standard line of diesel locomotives. This, together with the work being undertaken by Kitson's, in connection with the Kitson Still locomotive, turned his attention to a steam-diesel combination on the lines referred to, and some curves were produced for a locomotive powered by a McLaren Benz engine developing 440 b.h.p. (600 b.h.p. supercharged), used in combination with one of the writer's steam power units capable of a maximum output of 100 b.h.p.

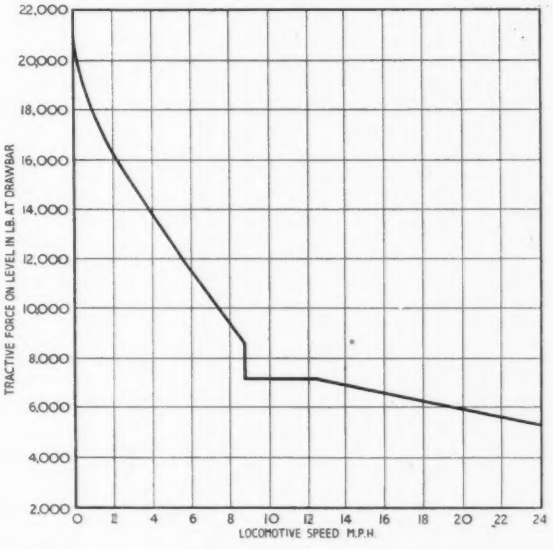
The diesel engine drove the wheels through the medium of a hydraulic coupling, the maximum locomotive speed being 25 m.p.h. at maximum engine speed of 800 r.p.m.; the wheel dia. was 45 in.

The steam engine running at 500 r.p.m., the speed at which it gave its maximum output, could be accelerated further up to maximum speed of 800 r.p.m. This engine was intended to be clutched in to the train of gears and used both to assist in starting the train and accelerating it jointly with the diesel engine until the train speed reached 8·8 m.p.h. At this speed, the steam engine, which then was running at 800 r.p.m., would be cut out and shut down, the diesel taking charge of the train.

The diagram, reproduced from one made at the time, shows the characteristics of the combination and, incidentally, a most unpleasant feature when the steam set cuts out. However, it would be quite

CHART OF TRACTIVE FORCE AT DRAWBAR OF DIESEL-STEAM GEARED LOCOMOTIVE

(Transmission efficiency taken as 90 per cent.)



McLaren R.S. Type 6 cyl. 400-450 h.p. at 700-800 r.p.m. Supercharged 33⅓ per cent. up to 400 r.p.m. diminishing to nil at 800 r.p.m.
Locomotive weight, 33 tons (27 tons adhesive). Speed, 25 m.p.h. = 800 r.p.m. Diesel = 187 r.p.m. of 45 in. dia. wheels.
5½ m.p.h. = 41 wheel r.p.m. = 500 steamer r.p.m. = 176 diesel r.p.m.
Steamer cuts out at 800 r.p.m. = 8·8 m.p.h.

Ratio of diesel to wheel revs. $= \frac{776}{187} = 4{\cdot}15$ to 1 (allowing 3 per cent. hydraulic slip)

Ratio of steamer to wheel rev. $= \frac{500}{41} = 12{\cdot}2$ to 1

20 lb./ton resistance for engine tractive force on adhesion $\frac{27 \times 2{,}240}{4} = 15{,}100$ lb.

simple to replace the unfortunate piece taken out of an otherwise pleasant curve by modifications to the steam characteristics of the combination.

Certain modifications to the original conception certainly are necessary. In the first place, it would appear that the oil-engine end of the power unit, with its use of the fluid flywheel and its gear ratio based on the maximum locomotive speed being obtained somewhat under the maximum speed of the compression ignition engine, requires no modification. In considering the steam end, however, several modifications could be made with advantage, even if we assume that a steam engine capable of developing 25 per cent. of the output of the compression ignition engine, is the correct ratio. It seems beyond question that the connection of the steam engine to the transmission should include two alternative gear ratios, one a very low one, which would enable the required train load to be started from rest with small help from the diesel and accelerated with increasing help, until by changing into the higher gear, the steam engine could run in parallel with the diesel until the diesel was capable of handling the train itself at full speed. The steam unit then is declutched and drops into the part played by the expansion gear on a steam locomotive, being brought into action, with consequent increased fuel consumption, whenever gradients or other circumstances demand increased power.

At the time the writer envisaged this arrangement, the Vulcan Sinclair hydraulic coupling just was receiving consideration as a means of improving the performance of the diesel locomotive. The S.L.M. clutch, the pioneer of hydraulically-operated clutches, was barely known, and on top of everything else, the possibilities of forced circulation and monotube steam generators were little appreciated.

At the present day, in spite of absence of detailed information on the subject in print, with the possible exception of some most interesting particulars of the Doble steam unit, which appeared some years ago in the *Autocar* and in a most interesting periodical entirely devoted to steam car and marine steam developments, it is clear that steam power units working at pressures ranging from 750 lb. per sq. in., up to 1,500 lb. per sq. in., do exist, and are satisfactory. Not only that, they are capable of producing a b.h.p. hr. by the combustion of one lb. of gas oil.

The writer feels that, in view of the small space taken up by this class of steam unit, and that steam can be raised in the generators to full working pressure in under one minute from all-cold, a scheme whereby the shortcomings of the compression ignition engine are made good, not by the use of change-speed gearing, or by the use of electric transmission, but by incorporating a high-pressure steam unit, is worth serious consideration.

There is not one technical point in connection with these high-pressure high-superheat units which has not been solved. Both the monotube and water-tube generators are entirely automatic in operation, the fire cutting in and out in accordance with steam requirements, the water level in the generators with definite water capacity being maintained by simple automatic appliances. In the type of locomotive envisaged, the boiler feed would be drawn from the internal combustion engine circulating system and the steam condensed in the radiator. Wholly, or partially, forced circulation would permit the heat of the exhaust from the main engine to maintain full working pressure in the steam generator and keep the steam engine ready for instant action without the burner cutting in.

In considering the fuel consumption of the steam end of the partnership, however, we must bear in mind that the period during which the steam engine is developing its full power will be a small fraction of the total running time and, consequently, although the consumption per b.h.p. hr. will easily double that of the diesel, the actual oil consumption added to the total oil consumption of the diesel and expressed in terms of ton-miles, or train-miles, will only slightly affect it; provided the diesel engine is capable of handling the load after receiving assistance at starting, except on gradients over a certain steepness.

It is questionable, though, when the steam unit is assisting on long banks, whether the additional power will cost much more in oil than would additional diesel h.p. From data in the writer's possession, the steam consumption of certain high-pressure reheating steam units, in powers ranging from 100 to 150 b.h.p., does not exceed 7½ lb. per b.h.p. hr. of steam. If we bear in mind that, on long banks the diesel will be running full out and that by use of jacket water and waste heat in the exhaust, it will be possible to produce between 2½ and 3 lb. of steam per b.h.p. of the diesel, we are brought face to face with the probability that the additional power requirements derived from the steam unit may very likely be produced by an additional oil consumption per b.h.p. hr., nearer that of the diesel engine than that of the steam unit, by reason of the contribution made by the waste-heat end of the steam generator.

The writer would like to see reasoned criticism of the proposals and is prepared to go further and make detailed suggestions relative to design of the steam end of the combination, as well as to back his suggestions by evidence that he is not talking wildly.

WEIGHT OF TRAIN IN TONS AT DRAWBAR AT 20 LB. PER TON ROLLING RESISTANCE FOR 33-TON DIESEL-STEAM LOCOMOTIVE

—	0°/oo level	2°/oo 1 in 500	5°/oo 1/200	10°/oo 1/100	15°/oo 1/66·6	20°/oo 1/50	25°/oo 1/40	30°/oo 1/33·3	35°/oo 1/28·6	Mm. per m. T.F. gross
Starting :										
Gross ...	755*	618	485	356	282	237	199	173	153	
Loco. ...	33	33								
Train ...	722	585	452	323	249	204	166	140	120	15,100
5 m.p.h. ...	665	544	427	314	248	205	175	153	135	
	632	511	393	281	215	172	142	120	102	13,310
10 ,, ...	390	318	250	184	145	120	102·5	89·5	79	
	357	275	217	151	112	87	70	56	46	7,810
15 ,, ...	370	302	237	175	138	114	97·5	85	75	
	337	269	204	142	105	81	64	52	42	7,410
20 ,, ...	330	270	212	156	123	102	87	76	67	
	297	237	179	123	90	69	54	43	34	6,610
25 ,, ...	293	239	188	138	109	90·5	77	67	59·5	
	260	206	155	105	76	57	44	34	26	5,860
Resistance lb./ton 20 lb./ton	24·48	31·2	42·4	53·6	64·8	76	87·2	98·4		

* 27 tons adhesion. Factor 4

SEAMLESS COPPER TUBES.—A British Standard for Seamless Copper Tubes with Plain and Screwed Ends for Steam Services (B.S.1306: 1948, Pt. 2) was published recently. It forms part two of B.S.1306, and is complementary to part one (Non-Ferrous Pipes and Piping Installations for and in connection with Land Boilers). Copies may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, S.W.1, price 2s. each, post free.

ENGINE DRIVERS PREPARE FOR HOLIDAY RUSH.—London Midland Region enginemen and guards were taken for a ride each day last week in a special observation coach between Manchester Victoria and Blackpool to enable them to acquire a knowledge of the line over which they will take special trains during the summer holiday months. The scheme was actually a refresher course for enginemen and guards who have not worked over that particular section of the line for some time and it will be continued as necessary prior to the holiday traffic. A motive power inspector was in attendance on each trip.

THOMAS DE LA RUE CENTRALISATION POLICY.—The firm of Thomas De La Rue & Co. Ltd. announces that, as a result of its recent centralisation policy, the business of its two wholly-owned plastics subsidiaries, De La Rue Insulation Limited and Hill, Norman & Beard Plastics Limited, has been transferred to the parent company, and both businesses, as from April 1, have been operating as the plastics division of Thomas De La Rue & Co. Ltd. Apart from this change of status the continuity of the businesses will be unaffected and no changes of personnel will be involved. The two remaining plastics companies in this group, De La Rue Extrusions Limited and De La Rue Floors & Furnishings Limited, will continue as previously due to the fact that they are not wholly-owned subsidiaries of the parent company.

INSTITUTION OF RAILWAY SIGNAL ENGINEERS.—The Council of the Institution of Railway Signal Engineers has announced that the annual summer meeting will be held on Friday and Saturday, June 24 and 25. On the Friday, there will be a visit to Cambridge to inspect the Pye Limited radio and electrical works and on the second day, London Transport Executive signalling installations will be visited at Harrow and Ruislip.

Public Relations & Publicity Reorganisation, British Railways

Standard arrangements for all Regions

A NEW organisation for the Public Relations & Publicity activities of British Railways has been completed by the Railway Executive, and with the approval of the British Transport Commission, was brought into operation on April 4.

This organisation will remove certain anomalies which previously existed as between the organisations and practices of the former railway companies in regard to the various aspects of Public Relations & Publicity, and will ensure that both at Railway Executive headquarters and in the six Regions of British Railways, there will be the most effective common method of procedure.

The principles which have been followed in drawing up this organisation include recognition of Public Relations & Publicity as a service for all departments. While the functional channel from Railway Headquarters to the Regions is being followed in this as in other railway departmental organisations, it is also recognised that Public Relations & Publicity activities are interlocked with almost every other phase of railway activity; therefore provision is made for the Regional Public Relations & Publicity Officers to maintain close contact with their respective Chief Regional Officer, and with other Regional Officers, on the Public Relations & Publicity aspect of matters within their jurisdiction.

Although the revised arrangements have been framed with a view to affording the maximum possible degree of decentralisation in Public Relations & Publicity matters, the need for administrative economy has to be balanced with that of ensuring the closest contact with the press and the public.

Division between "P.R." and "Publicity"

The former railway companies' arrangements for Public Relations & Publicity differed in the channels of organisation, the division of responsibility between the officers responsible for the various functions, and the terminology used. In its new organisation, the Railway Executive follows the terminology of the British Transport Commission as to the broad division of these functions, which are now as follow:—

Public Relations: General Press relations, enquiries, and answers to letters of criticism; relations with B.B.C.; ceremonial functions; public lectures; applications from the public for information, photographs, etc. (other than enquiries of a purely service nature); policy aspect of public visits to railway installations; staff magazines; etc.

The Public Relations Officer is also responsible (at Railway Executive headquarters only) for general correspondence with M.Ps., public bodies, and the public; in the Regions, this is dealt with under arrangements made by the Chief Regional Officers. Also included under Public Relations are arrangements (in conjunction with the Films Division of the British Transport Commission's Publicity organisation) in connection with the production, distribution, and exhibition of cine films and filmstrips.

Publicity: Press advertising; production and distribution of posters, literature, public notices and signs; display of publicity material at stations; provision of enquiry offices at exhibitions and shows; preparation of standards for public signs and notices and lettering of vehicles, town offices, etc.

The responsibilities of the Publicity side also include the fixing and maintenance of all commercial advertisement sites on railway premises; the letting of these spaces after March 14, 1949, is conducted by the Commercial Advertisement Division of the British Transport Commission.

Organisation at the Railway Executive

At Railway Executive Headquarters, the Chief Officer (Administration) is responsible to the Chairman for Public Relations & Publicity. The two functional officers responsible for the respective departments (the Public Relations Officer—Mr. D. S. M. Barrie—and the Publicity Officer—Mr. G. Wynne Davies)—report to the Chief Officer (Administration), and are Chairmen of the Railway Executive Public Relations Committee and the Publicity Committee respectively.

The Railway Executive's Public Relations & Publicity organisation will be responsible for the control of all relative expenditure, for laying down standards, for co-ordinating matters which affect more than one Region, and for undertaking directly all necessary Public Relations & Publicity functions appertaining to the Railway Executive itself.

In each of the six Regions of British Railways, the functions of Public Relations & Publicity are now being combined in a Regional Public Relations & Publicity Officer.

Although the specialist functions of Public Relations & Publicity are capable of separation for most day-to-day purposes, it has been recognised that they require to be co-ordinated and balanced at the top level in all organisations using them; the accompanying diagram shows how this is achieved under the new arrangements both at the Railway Executive and at Regional Headquarters. The object throughout has been to provide an organisation which, while being sufficiently flexible for all ordinary routine, avoids overlapping and is closely integrated at the top.

Regional Organisation

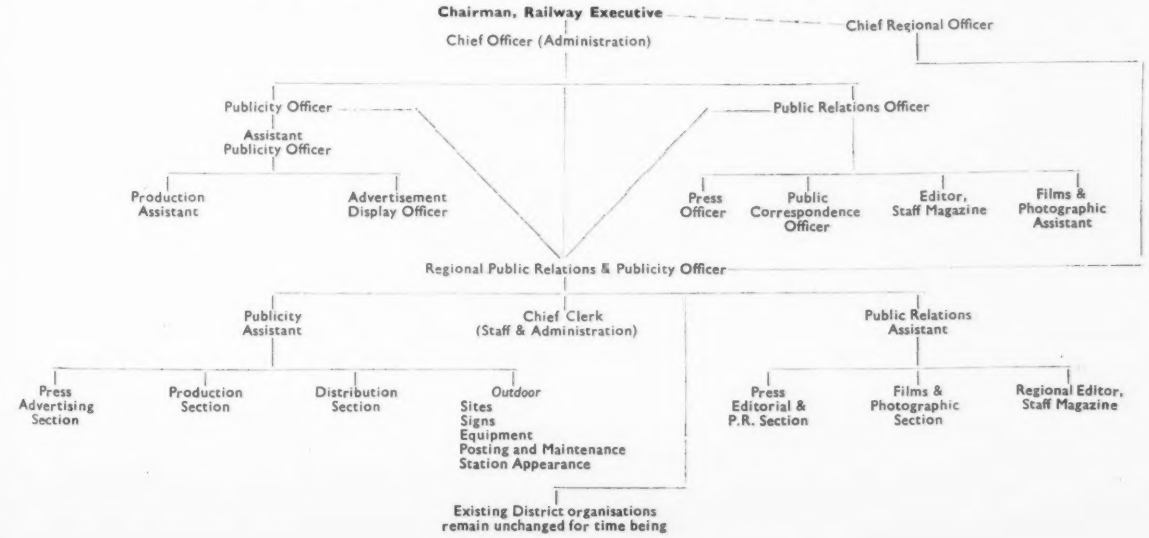
The organisation in the Regions follows the same principles as those at Railway Executive Headquarters, with the respective functions of Public Relations & Publicity controlled and co-ordinated by one officer, as an important department of railway administration.

As part of the reorganisation, the North Eastern Region now has its own Public Relations & Publicity Department located at the Regional Headquarters at York; as an interim arrangement the Eastern and North Eastern Regions hitherto have shared bi-Regional Press Relations & Advertising Departments located at Marylebone.

Each Regional Public Relations & Pub-

(*Continued on page* 449)

PUBLIC RELATIONS & PUBLICITY ORGANISATION—BRITISH RAILWAYS



ULSTER TRANSPORT AUTHORITY

Headquarters Organisation

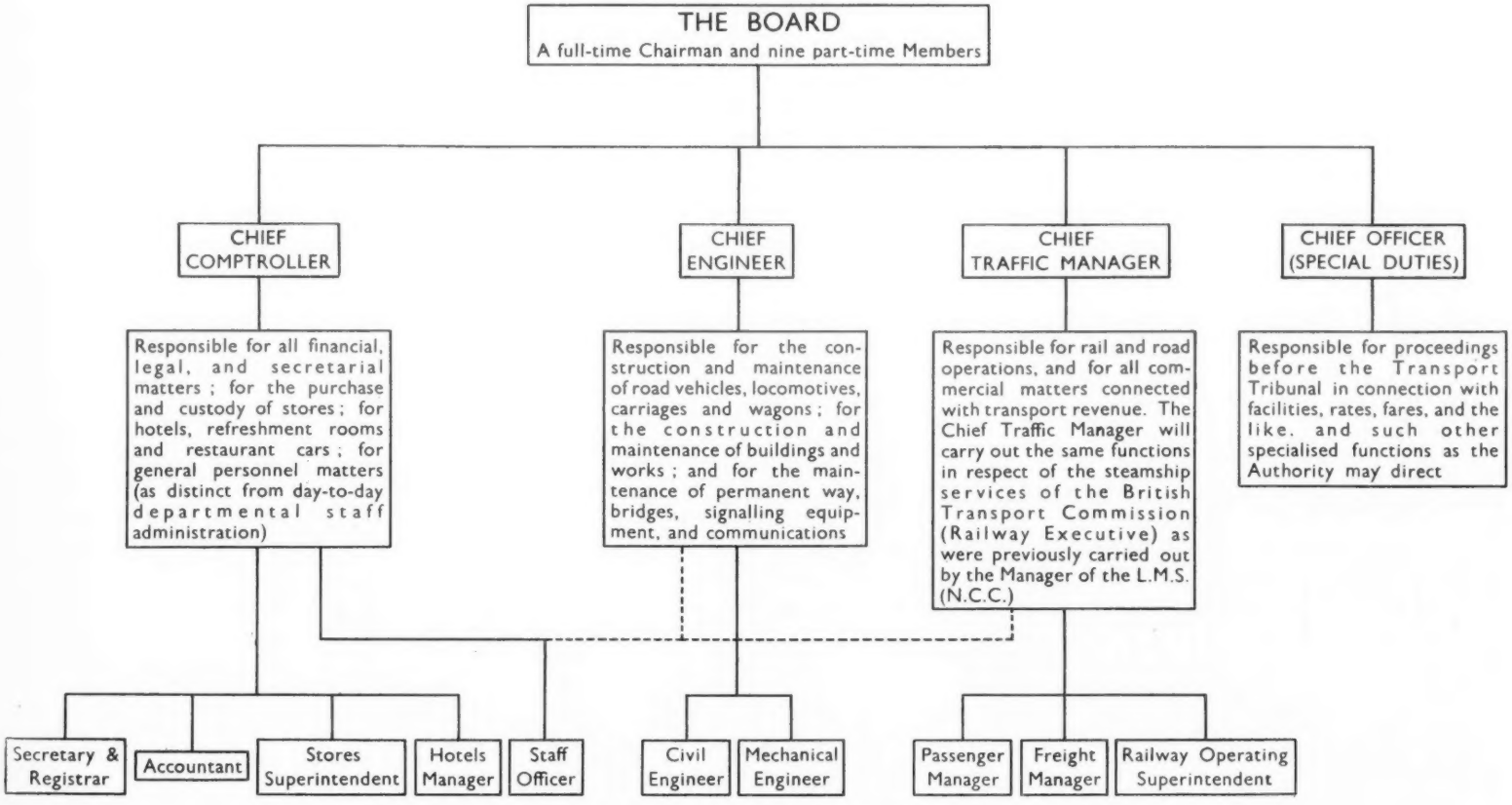

THE BOARD
A full-time Chairman and nine part-time Members
CHIEF COMPTROLLER
CHIEF ENGINEER
CHIEF TRAFFIC MANAGER
CHIEF OFFICER (SPECIAL DUTIES)
Responsible for all financial, legal, and secretarial matters; for the purchase and custody of stores; for hotels, refreshment rooms and restaurant cars; for general personnel matters (as distinct from day-to-day departmental staff administration)
Responsible for the construction and maintenance of road vehicles, locomotives, carriages and wagons; for the construction and maintenance of buildings and works; and for the maintenance of permanent way, bridges, signalling equipment, and communications
Responsible for rail and road operations, and for all commercial matters connected with transport revenue. The Chief Traffic Manager will carry out the same functions in respect of the steamship services of the British Transport Commission (Railway Executive) as were previously carried out by the Manager of the L.M.S. (N.C.C.)
Responsible for proceedings before the Transport Tribunal in connection with facilities, rates, fares, and the like, and such other specialised functions as the Authority may direct
Secretary & Registrar
Accountant
Stores Superintendent
Hotels Manager
Staff Officer
Civil Engineer
Mechanical Engineer
Passenger Manager
Freight Manager
Railway Operating Superintendent

Diagram showing interior scheme of organisation of the Ulster Transport Authority

Ulster Transport Authority

Principal points of interim scheme of organisation

WITH the passing by the Parliament of Northern Ireland of the Transport Act (Northern Ireland), 1948, the formation under it last autumn of the new Ulster Transport Authority, the vesting in it of two of the principal transport concerns in Northern Ireland, and the prospect of a third one being acquired at an early date, it was necessary that the newly-formed Authority should decide on some centralised form of headquarters organisation for the control and management of the merged undertakings.

By the terms of the Act, the undertakings of the Northern Ireland Road Transport Board and the Belfast & County Down Railway Company vested in the Authority as from October 1, 1948, and Section 65 of the Act laid down a procedure for the voluntary acquisition of the remaining transport concerns from time to time, and, by an arrangement under that Section, the Northern Counties Railway formerly owned by the British Transport Commission, passed into the ownership of the Authority on April 1, 1949.

By a previous agreement, however, between the British Transport Commission and the former Northern Ireland Road Transport Board, the joint administration of the Road Board and the Northern Counties Railway was established, pending the completion of the arrangements for the transfer of the railway now effected. This arrangement was adopted by the Ulster Transport Authority so that, in fact, the Northern Counties Railway was already embraced in an operating sense in the Authority, and this greatly facilitated the planning of the future organisation.

Centralised Management

It was realised that the continuance of the constituent undertakings as separate entities and with their several managements reporting to the Authority, would not be conducive to the merging and co-ordination of services contemplated by the Act, and necessary in the interests of economical working, but rather that one centralised management would be necessary so that their fusion, which was one of the main objects of the Transport Act, might be attained.

It was also realised that any scheme of organisation would have to be an interim one and only in respect of headquarters administration, as time would be required, not only from the point of view of selection of men, but from the point of view of adaptation of premises, to deal with the organisation to be provided to control operations throughout the area outside headquarters.

The territory of Northern Ireland which the Ulster Transport Authority has been established to serve, has an area of 3,352,251 acres or 5,238 square miles, with a seaboard to the North Atlantic and the Irish Channel of 245 miles, and a land boundary to the South and West, dividing it from the remainder of Ireland, of about 200 miles. The area is fairly compact; the longest possible road haul from Belfast in the East to Belleek in the West is only 110 miles, whilst most points in the territory are within a two-hour road journey by motor vehicle from one or other of the principal ports.

The territory is served by 13,192 miles of road, 677 miles of railway, and 123 miles of canal, excluding navigable lakes. This gives 250 miles of road, 13 miles of railway, and 2¼ miles of canal per 100 sq. miles of area, which compares with 265 miles of road, 28 miles of railway, and 3½ miles of canal per 100 sq. miles for England and Wales, so that it is well served with traffic arteries.

The population is 1,348,000 persons (about four-fifths of the population of New Zealand), of which 448,000 live in the principal city of Belfast, and 49,000 in Londonderry City; the remainder are distributed throughout the smaller towns and the countryside, with a density falling roughly in proportion to the distance from the coast line.

Assets Controlled

The Authority now controls over 1,000 buses operating over 2,381 route-miles; almost 1,000 road motor lorries; 93 locomotives; 447 railway carriages; 2,928 goods wagons; 325 miles of railway track; over 10,000 employees; five hotels; and 14 refreshment rooms.

As to the constitution of the Authority itself, Section 1 of the Act provides that it shall consist of not less than five, nor more than ten, members appointed by the Minister of Commerce, who shall be persons who have had wide experience and have shown capacity in transport, industrial, commercial, agricultural, or financial matters, the conduct of public affairs, or in industrial relations. This is the sole body for the control of the organisation; there are no subsidiary bodies corresponding with the Road, Railway, Canal, and other Executives and consultative bodies set up under the corresponding British Act.

In practice, the Minister has nominated a full board of ten members, comprising a full-time Chairman, and nine part-time members, all of whom are men of standing in agriculture, commerce, industry and trade, and four of whom were members of the boards of the constituent companies.

At the next level, immediately below the Board, there are four principal officers, each responsible to the Board and also to one another for proper co-ordination of activities, and each having under his control a particular section or division of the undertaking. These four Chief Officers comprise the Chief Comptroller, the Chief Engineer, the Chief Traffic Manager, and the Chief Officer (Special Duties).

Duties of Chief Officers

Chief Comptroller.—This Officer is responsible for all financial, legal, and secretarial matters; for the purchase and custody of stores; for hotels, refreshment rooms and restaurant cars; for general personnel matters (as distinct from day-to-day departmental staff administration).

Under him there is the Secretary & Registrar and the Accountant, each responsible for departments comprising the functions normally pertaining to their respective offices; the Stores Superintendent, who, under the Chief Comptroller, attends to the purchase of the necessary materials for the undertaking and the custody thereof; and the Hotels Manager, who is in charge of the hotels, refreshment rooms, rail dining cars, staff canteens and the like of the Authority.

In addition, the Chief Comptroller has the assistance of a Staff Officer in connection with staff and personnel matters. In view of the fact that each department is in the immediate control of all its own staff, it is necessary that the Staff Officer should work in conjunction with the departments, particularly where the interpretation of trade union agreements and other like matters arise, and this relationship between the other departments and the Staff Officer is specially indicated on the accompanying chart.

Chief Engineer.—This Officer is responsible for all engineering matters, including the construction and maintenance of road vehicles, locomotives, carriages and wagons, buildings and works, and for the maintenance and renewal of permanent way, bridges, signalling equipment, and communications. The work in the department naturally divides itself under the headings respectively of Civil Engineering and Mechanical Engineering, and the Chief Engineer has under him two heads of departments, one to take charge of each side of the work.

Under the Civil Engineer are such matters as the maintenance and upkeep of the permanent way, building maintenance and building design and development, including the supervision, as and when it arises, of building or other work entrusted to outside contractors.

Under the Mechanical Engineer fall the care, maintenance and upkeep of both road and railway rolling stock, electrical and signalling equipment, the building of new bodies, and locomotive maintenance.

The necessary contacts with various Government Departments are also maintained by the Chief Engineer's Department in connection with such matters as the proper maintenance and safe working of the railways, and rail and road rolling stock, factory and workshop legislation, snow clearance arrangements, and the like.

Chief Traffic Manager.—Under this Officer and responsible to him there are three heads of departments, namely, the Passenger Manager, the Freight Manager, and the Railway Operating Superintendent, but in their case a practical rather than a logical division of duties has been followed. First, as regards the commercial side as distinct from operations, it has been decided to put all freight traffic, both by road and rail, under one Freight Manager, and likewise all passenger traffic, whether by road or rail, under the Passenger Manager, with a view to obtaining the greatest possible co-ordination.

On the operating side, however, different considerations prevailed, as the result of which all rail operations, both passenger and freight, owing to their highly technical nature, were placed under a Railway Operating Superintendent, directly responsible to the Chief Traffic Manager, but required to act in conjunction with both the Freight and Passenger Managers.

On the road operation side it was felt that the operation of road vehicles could be handled more efficiently with, and could not, in fact, be divorced from the commercial control, and, in consequence, bus operation was placed under the charge of the Passenger Manager and lorry operation under the charge of the Freight Manager.

Chief Officer (Special Duties).—Part VI of the Northern Ireland Transport Act has resulted in the setting up of a Transport Tribunal with very much wider powers than those of the Tribunal established under the Transport Act of 1935, and now being repealed, and with a much more involved and detailed procedure.

Amongst other things, the Authority, either alone or in conjunction with any remaining railways in Northern Ireland, is

(*Continued on page* 450)

The Use of Multiple-Unit Trains on the Swiss Railways

A Swiss expert suggests revision of the timetable to allow for the large-scale use of multiple-unit trains

IN an article in *Bulletin Technique de la Suisse Romande*, M. J.-P. Baumgartner discusses the advantages and disadvantages of electric multiple-unit trains as compared with the trains hauled by electric locomotives, which are preferred by the Swiss Federal Railways. In fact, out of 640 electric units owned by the Swiss Federal Railways, as many as 580 are locomotives. The comparatively few reversible railcar units are relegated to secondary lines and suburban lines, operating a mere 6 per cent. of the total motor vehicle mileage in passenger service.

On the other hand, some locomotive-hauled trains have been accelerated by using improved brakes and special lightweight carriages and locomotives. The prevalence of locomotive-hauled trains, working to a more or less traditional timetable, now appears to be taken for granted in Switzerland, although this policy is contrary to the policy in some other countries, notably Holland, Belgium, and Britain.

The author queries the wisdom of the official Swiss policy and pleads the case for the large-scale introduction of multiple-unit trains on the Swiss main lines, working to a completely revised, standardised timetable. There are the well-known advantages of multiple-unit trains. They can be reversed simply by the driver changing ends. Their composition is flexible inasmuch as several units can be coupled up to form a single train. Their rate of acceleration and climbing power is greater.

The average number of passengers per train conveyed by the Swiss Federal Railways in 1947 was 133. A two-car unit with 150 seats would be adequate therefore to cover about half of all the train workings, and a four-car unit with 300 seats would cover nine-tenths of all requirements, even making allowance for fluctuations of loadings *en route*. This four-car unit is regarded as the limit up to which the multiple-unit train is more economic in operation than the locomotive-hauled train.

There is, however, one important disadvantage of the multiple-unit train. It is little suited for the mixed type of traffic that is often encountered on Swiss railways. Apart from passengers and their luggage, bicycles, express goods in "smalls," and whole wagon loads are frequently conveyed by passenger trains. The segregation of that mixed traffic from the actual passenger traffic is an aim which is worthy of being pursued on its own merits quite independent of the issue of multiple-unit trains. As the mixed traffic in itself would require a reasonably fast and frequent service, its segregation from the "purified" passenger traffic is likely to be costly, but that expenditure may have to be incurred in any case, and cannot justly be ascribed to the introduction of multiple-unit trains.

It is reckoned that a multiple-unit train, freed from mixed traffic, would save about one min. in running and standing time on the average station-to-station journey of 2·2 miles. If the key stations are spaced at, say, ten times that distance, the corresponding saving of 10 min. would be sufficient to justify a complete recast of the timetables.

Such a recast should be based on a fast, frequent, and regularly spaced service of reversible electric trains with carefully planned recurring connections at the junction stations, but in view of the increased frequencies, it would not always be necessary to hold trains for connections, so that the spreading of delays over other sections could be avoided. The fast passenger service would work in with a less fast but likewise fairly frequent and regular service for mixed traffic. On this pattern, the long-distance and international through trains for passengers and goods would have to be superimposed.

The problem may not be easy to solve, but in the author's opinion, the advantages of multiple-unit operation make it worthwhile to give the scheme careful consideration.

Operating Results of the Rubber-Tyre Electric Train of the French National Railways

IN the October 14, 1938, issue of the *Electric Railway Traction* Supplement, the "Micheline" pneumatic-tyred three-car electric train, which the French National Railways had just put into experimental service on the third-rail suburban lines out of St. Lazare Station, Paris, was described and illustrated. In August, 1940, and 1943, it began a regular shuttle service between Auteuil and Pont-Cardinet, until, unfortunately, in 1943 an accidental short-circuit while in service resulted in two of the three cars being burned out, the third remaining intact.

The April, 1946, issue of the French periodical, *Revue de l'Aluminium*, in an illustrated article on the train, gave interesting details of its performance on trial and in service. On the long 1 in 28 incline between Le Pecq and Saint-Germain, the speed, with a full load, was kept at 56 m.p.h., compared with the 25 m.p.h. barely maintained with the normal stock. The lightweight construction of the coaches, of aluminium, was shown to particular advantage in acceleration; up the same incline, in 656 yd., a speed of 50 m.p.h. was reached from rest in under 40 sec. Between Paris and Versailles Rive Droite, the 15 miles were covered in 30 min. with 13 stops, or the same time as the ordinary semi-fast trains with only five stops.

As only one set was built, it was not possible to reap the full benefit of the advantages afforded, especially in rapid acceleration and the lower current consumption, and the train was put on to the shuttle service already mentioned, where it proved most satisfactory. Current consumption was reduced by 24 per cent. compared with normal stock, and suburban travellers appreciated the speed, silence, and comfort of the train.

As recorded in *The Railway Gazette* of November 19, 1948, the activity of the Michelin Company in France is at present directed to pneumatic-tyre passenger coaches for main-line work, but, despite the untimely end of the electric set, it is hoped that the experience gained with this single example of the application of the pneumatic tyre to multiple-unit electric trains will lead to further experiments in this field.

The Electrification of the Barcelona-Mataró Line

The completion of electrification of the 18-mile double-track line between Barcelona Término and Mataró, the first railway in Spain, was the principal item in the events marking the first centenary of the Spanish railways, as reported in our issue of December 17, 1948. The work of conversion began in June, 1947. By March, 1948, the casting of the concrete blocks for the standards of the overhead was well under way.

Early in September, 1948, the overhead system was completed. The building of the Mataró substation was completed in April, and its electrical equipment ready *in situ* by the middle of September. In addition to the overhead system proper, two auxiliary feeder lines had to be laid for the supply of power to Moncada Junction substation of the Barcelona—Manresa main line. On October 16, twelve days before the inauguration of electric traction on October 28, the first trial runs took place.

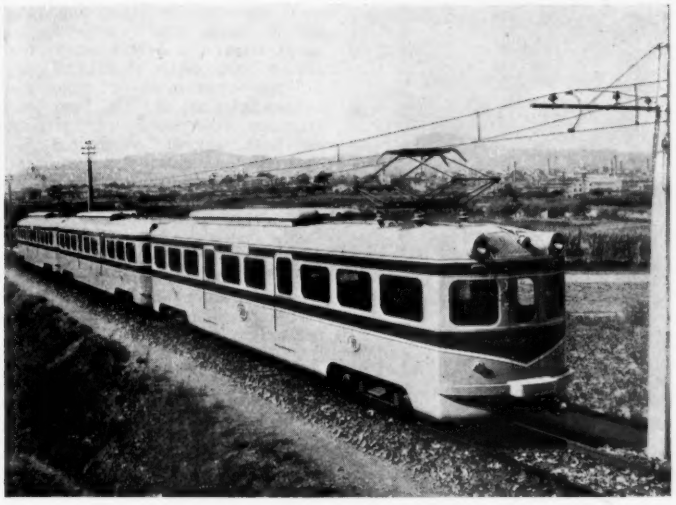
The electrification cost approximately 25 million pesetas, some £550,000, although this amount does not cover expenditure on the converter groups and various auxiliary plant. For the overhead, 970 standards had to be erected. Excavations totalled 317,850 cu. ft. of earth and rock, and reinforced concrete used totalled 310,790 cu. ft.

The electrification of the Barcelona—Mataró line was included in the 2,800-mile electrification scheme decided on early in 1946, which envisages also the conversion of the extension Mataró—Empalme, 29·2 route-miles (47 km.). At Empalme, junction is made with the Barcelona—Granollers — Gerona — Port-Bou — Cerbère (France) main line, the electrification of which also is projected in this scheme. The full programme was outlined in our October 11, 1946, issue, with a map showing the lines to be electrified.

ELECTRIFICATION OF BLACK SEA COAST LINE.—According to a recent report from Moscow a large hydro-power station placed in service some time ago in the Caucasian mountains near Sukhum, on the north-eastern coast of the Black Sea, is intended not only to supply power to the population of the north-western regions of the Georgian Soviet Republic and the industries which are to be set up there, but also to provide the current for electric traction on the 70-mile railway between Sukhum and Sotchi in the north, traversing a region known as the "Black Sea Riviera."

New Rolling Stock for a Spanish Electric Railway

Cars of attractive design are being placed in service on a Barcelona suburban line



Three-car train of new stock, Ferrocarriles de Cataluña

THE Ferrocarriles de Cataluña consist of a 1,200-volt electric line running underground from a station at Plaza de Cataluña in the centre of Barcelona for about three miles, thence in the open to Tarrassa, 17¼ miles, with a branch to Sabadell, taking off at San Cugat, about 8½ miles out.

Throughout the day a 5-min. service is maintained by two-car units to Sarria, 2¾ miles. Tarrassa and Sabadell each have a 30-min. service of three-car trains. A further underground line of about 2¾ miles is being built from a point some 1¼ miles from Plaza de Cataluña to Avenida Tibidabo, and it is intended to provide on it a 5-min. service, thus requiring local departures from the terminus every 2½ min., in addition to the half-hourly Tarrassa and Sabadell trains.

Originally the city terminus was in the open, and the line ran for about a mile along the streets traversed by many tram lines. As the latter used current at 550 volts, with the usual overhead collection, the voltage of the railway had to be 600. A few miles beyond Sarria the voltage was stepped up to 1,200, and the cars therefore had special changeover equipment.

Original Rolling Stock

The oldest stock consists of cars built in the U.S.A. about 35 years ago. They are of the clerestory-roof type, and a train is made up of three cars; the two outer are motor cars each equipped with four motors and controlled on the multiple-unit system using separate electromagnetic contactors. These trains maintain the services to Tarrassa and Sabadell.

A second type of stock is about thirty years old and was built complete in the U.S.A. They are somewhat smaller than the earlier cars and are used both singly and in pairs on the local service to Sarria. A third series of twelve cars, built in the railway workshops in 1923 and 1924, are equipped with British-built four-motor electrical equipment. The bogies, of the equalised type, were also built by the railway company.

The gradient from the terminus is about 1 in 60 for three miles, so that powerful equipment is required to give an acceleration of 2 m.p.h. On the trains operating the Sarria service wooden brake blocks, made from a native hardwood, vacuum and pressure impregnated with low-grade olive oil, are used. Their life is rather longer than that of the cast-iron shoes previously used.

Cast-iron shoes are used on the longer-distance trains because of the higher speeds and the long gradients through the mountains, including stretches of 1 in 25 and 1 in 33. To provide adequate braking down these inclines, rheostatic brakes are used, with the resistances mounted on the roof.

New rolling stock of handsome appearance is being built in the railway workshops. The body is of light sectional materials and curved platework, electrically welded. The outer plating is carried down in skirt form to the wheel centres, with openings to enable the bogies to move freely.

There are two passenger doors, worked in combination with the footsteps by remote control. The motor compartments, at each end of the coach, are separated by a partition from the passenger accommodation. Side windows are of "Securit" safety glass. Inside, the body is lined with cork covered with "Ucola" sheeting, clear varnished.

There are 12 single and 10 double seats, each for two persons, giving seating accommodation for 64. The floor is of wood, covered with cork and linoleum. The roof is double, with the outer steelwork carried by spacing pieces of profiled plate work, and the interior is covered by cork carried on wooden framing.

The type of ventilator used hitherto has been dispensed with. It was mounted above the roof and had the disadvantage of absorbing hot air produced by the starting and braking resistances placed there. There are now openings in each end wall of the vehicles, with adjustable lattice covers, and these enable a current of air, regulated at will, to enter between the inner and outer roofs and reach the interior of the vehicle. These openings are protected outside by tubing mounted in radiator fashion.

Compressed air and mechanical hand braking is provided. The electric brake is rheostatic, with three notches. The first notch, used on gradients of 1 in 50, maintains the speed at 18 m.p.h., the second, on gradients of 1 in 33, maintains it at 15·5 m.p.h., and the third, for 1 in 25 gradients, at 12 m.p.h. Current collection is by pantograph.

The control system incorporates a number of improvements suggested by practical experience, which simplify the working and guarantee efficient operation. Normal lighting is from 36 25-watt lamps and the

(*Continued on page* 451)

Interior of the new cars

Fastenings Between Steel Sleepers and Flat-Bottom Rails

Heat-treated detachable jaws used in India and Pakistan

Flat-bottom track on steel sleepers with Mills jaw fastenings

DURING the many years the steel sleeper has been in use, a variety of methods has been employed for securing the flat-bottom rail to it. A common one, in use for many decades, entailed the punching up of a substantial portion of the rail-seat in the sleeper to form a lug, in which the rail-foot was secured by steel tapered keys. The rail-seat was thus weakened, and the driving (and over-driving) of the keys tended to cause cracks in the sleeper, and to distort the lugs, so that they eventually lost their grip.

Numerous devices have subsequently been evolved which, it is claimed, have proved more satisfactory. Some take the form of stiffened lugs, and others comprise a separate jaw inserted through a comparatively small hole in the sleeper. Mild steel has generally been used for these separate jaws, which have a shank under the sleeper. The separate jaw has certainly reduced to a minimum the weakening of the rail-seat and provides a very rigid form of fastening.

About 20 years ago experiments were initiated with a type of detachable jaw made of heat-treated steel, hardened and tempered. Produced by Exors. of James Mills Limited, of Bredbury, Stockport, this type of jaw can be made from a rolled-steel section, and can be blanked from the rolled bar, and formed to shape, with subsequent heat treatment. The makers claim that it has the flexibility which is desirable, if unduly severe tolerances on rail foot dimensions, and on steel taper keys, are not to be imposed. When the key is driven between the jaw and the rail foot, the jaw is in spring tension, and the key is held with a resilient and positive grip. The taper key grips the side of the rail foot, taking up all manufacturing tolerances and clearances between the various components, and prevents chafing at the rail seat by ensuring a fixed position for the rail. The latest type incorporates an internal groove, which ensures a correct bearing between the jaw and key, and prevents centre binding. The hole in the sleeper is round, and of the minimum dimensions for a semi-elliptical shank, so that only a small amount of metal is removed from the sleeper table, and there are no corners from which cracks may start.

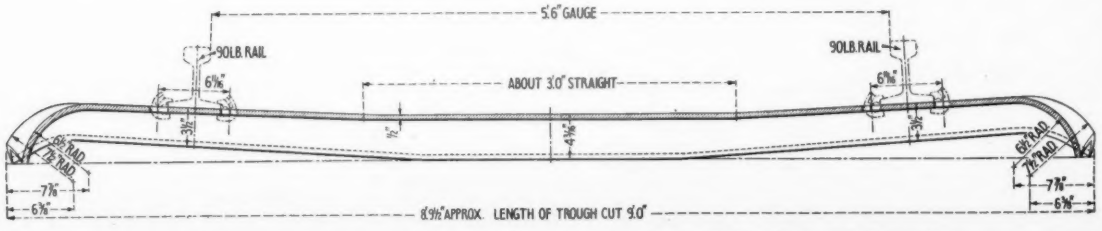
As a result of extensive trials on main lines in India, the Mills spring steel loose jaw was included in the Indian Railway Standards Manual of Permanent Way, and has become a standard type of fastening used with steel sleepers throughout India and Pakistan. It is used not only in plain track, but also in turnouts with steel sleepers, if track-circuiting is not required. The semi-elliptical section of the shank in a circular hole permits the jaw to swivel and take up the rail alignment relative to each turnout sleeper.

The rolled-steel section from which the jaw is produced is of semi-elliptical shape in the middle third, with a flat portion on each side, tapering slightly towards the edges. The centre portion of the bar forms the shank of the jaw, and the wings are blanked off, leaving the full width of the bar to form the bearing surface for the taper key. The tee-shaped blank is then pressed to the shape required for the shank to be inserted through a circular hole in the sleeper, to grip the underside of the sleeper firmly, when the key is driven between the jaw and the rail. Finally, the jaws are suitably heat-treated and subjected to rigid inspection and testing. The keys and rail are held in a vice-like grip between the opposing jaws and sleeper table, and the spring tension set up in the jaws, when the keys are driven, offers continual resistance to any movement of the keys in either direction. As the keys are driven in opposite directions on either side of the rail foot, accurate gauge and alignment is attained, and slight variations on the rails and keys can be taken up. It is also claimed that rail creep is prevented, and that anchors are unnecessary. Tests have shown that no undue permanent distortion can arise through overdriving of keys.

The round holes in the sleeper table can be drilled or cold punched with great accuracy. The jaws will accommodate themselves automatically to the rail alignment relative to the sleeper, as soon as the keys are driven. The Mills jaw is used normally with a taper key on each side of the rail. The standardised two-way taper key is employed universally, as it can be driven from either direction, and is preferable to one with a single-way taper. It is possible to provide for relaying with heavier rails without changing the sleepers and fastenings if suitable keys and jaws are provided in the first instance. The jaws are adequately protected against corrosion and we are informed that some 15 years' experience has shown that no wear has taken place, and that gauge has been maintained.

Close-up view of the rail fastening

Although some variation in gauge is obtainable when identical jaws and keys are used at each rail seat, a single key on one side of the rail, with jaws of different thicknesses, will provide for a progressive widening of the gauge. Widening up to $\frac{3}{8}$ in. can be obtained, by using jaws of different sizes, and two identical keys. The thicker jaw is grooved for identification.



Longitudinal section through centre of sleeper, showing details of the rail fastenings

RAILWAY NEWS SECTION

PERSONAL

Northern Ireland Government Appointments

Among appointments recently made in the Government of Northern Ireland are those as Minister of Commerce of Mr. W. B. Maginess, K.C., and as Minister in the Senate of Senator Sir Roland Nugent.

The Minister of Civil Aviation has appointed Mr. Whitney Straight, Chief Executive of British Overseas Airways Corporation, to be a member of the board of British South American Airways Corporation.

Sir Joseph Hallsworth has accepted the invitation of the Minister of Fuel & Power to become Chairman of the North Western Area Electricity Board, and is accordingly resigning his appointments as a member of the National Coal Board and Chairman of the Miners' Welfare Commission.

Mr. A. S. Woodgate, hitherto Chief Engineer of Ribble Motor Services Limited, has been appointed Assistant General Manager.

We regret to record the death on April 11, at the age of 79, of Colonel A. M. Henniker, C.B.E., who was Deputy Assistant Director of Railways in France during the 1914-18 war, and who was chosen to write the volume on transportation on the Western Front in the "Official History of the Great War."

Scottish Region Appointments

The following appointments are announced in the Scottish Region, British Railways:—

Mr. C. R. Atkins, Assistant Stores Superintendent, Glasgow, to be Stores Officer, Scottish Region, Glasgow.

Mr. G. H. Nelson, District Motive Power Superintendent, Carlisle, to be District Motive Power Superintendent, Glasgow (North).

Captain Hugh Vivian, Chairman of Beyer, Peacock & Co. Ltd., states in his review for 1948, circulated with the report and accounts, that he will shortly be relinquishing the Chairmanship, and will be succeeded by Mr. Harold Wilmot, at present Managing Director.

On account of pressure of other business General Sir Wilfred Lindsell has resigned from the board of the National Gas & Oil Engine Co. Ltd.

Mr. A. G. Evershed, Audit Officer, London Transport, has been appointed to the new post of Economic Efficiency Officer. Mr. Evershed will collate and study financial and statistical measurements of economic efficiency in all branches of the Executive's work to assist in the economical discharge of that work. Mr. E. S. H. Eales has been appointed Acting Audit Officer.

Sir J. George Beharrell, D.S.O., as recorded in our April 8 issue, has resigned his position as Chairman of the Dunlop Rubber Co. Ltd. The board has appointed him President, and he thereby becomes *ex officio* a Director. He was born on March 11, 1873, and joined the North Eastern Railway in 1888, and in 1902 he became Parliamentary Assistant to Sir George Gibb. In 1907 he was appointed an Assistant to Sir Eric Geddes, then Chief Goods Manager, and in 1913 was made Assistant Goods Manager. In 1915 he joined Sir Eric Geddes at the Ministry of Munitions. When the Ministry of Transport was formed in 1919 he was appointed the first Director-General of Finance & Statistics. In 1919 he was knighted for his war services. Sir George Beharrell left the Ministry in 1922 to become Managing Director of the Dunlop Rubber Co. Ltd., of which Sir Eric Geddes was Chairman. He was also made a Director of Imperial Airways Limited on its formation in 1924. After the death of Sir Eric Geddes in 1937, Sir George Beharrell became Chairman of both companies. He was President of the Federation of British Industries in 1932-33, and in 1938 was appointed a member of the Prime Minister's Advisory Panel of Industrialists.

Sir George Beharrell

Who has resigned the Chairmanship, and becomes President, of the Dunlop Rubber Co. Ltd.

Mr. J. H. Wadsworth, one of the Directors of Imperial Chemical Industries Limited, in charge of oversea interests, has retired on attaining the age of 62.

Sir Eric Gore Browne (formerly Chairman of the Southern Railway Company) is one of the members of the Royal Commission on Lotteries, Betting & Gaming, of which Mr. H. U. Willink, K.C. (sometime a Director of the Southern Railway Company) is Chairman.

London Midland Region Staff Changes

The following staff changes are announced in the London Midland Region, British Railways:—

Mr. G. F. Stoddart, Chief Commercial Clerk, District Goods & Passenger Manager's Office, Leicester, to be Assistant District Goods & Passenger Manager, Northampton.

Mr. W. A. Wild, Assistant District Motive Power Superintendent, Wellingborough, to be Assistant District Motive Power Superintendent, Nottingham.

Mr. G. V. Davies, Head Office Inspector (Relief), Operating Superintendent's Office, Euston (located Warrington), to be Stationmaster, Liverpool (Central).

Mr. Norman Johnson has been appointed Chief Engineer of the Pullman Car Co. Ltd.

Mr. E. Flaxman, who was recently appointed Goods Superintendent, Paddington, Western Region, British Railways, joined the Great Western Railway, in the Chief Goods Manager's Office, in 1917, and later gained experience in the Traffic and Engineering Departments, before being transferred in 1929 to the General Manager's Office. In 1938, Mr. Flaxman returned to the Chief Goods Manager's Office, and subsequently became, in turn, Chief Clerk, South Lambeth; Goods Agent, Oxford; Cartage Superintendent, Paddington Goods; Assistant Agent, Paddington Goods; Goods Agent, South Lambeth; Assistant District Goods Manager, Birmingham; and Assistant District Goods Manager, London, before appointment to his present post. He holds the Brunel Silver Medal of the London School of Economics.

Mr. A. Shoemack, who has been appointed Assistant District Goods Manager, Paddington, Western Region, British Railways, joined the Great Western Railway at Birmingham (Hockley) in 1907, and, during a period there of 20 years, obtained all-round experience of goods station working. After periods in the District Goods Manager's Office, Birmingham, and the Chief Goods Manager's Office, Paddington, he took charge of the General Office of the Bristol District Goods Manager. He was subsequently appointed Chief Clerk at Bristol Goods, at Paddington Goods and to the London District Goods Manager, respectively. Later, he became Goods Agent at Brentford, then at Smithfield, and eventually Assistant District Goods Manager, Birmingham.

Reorganisation of British Railways Police Force

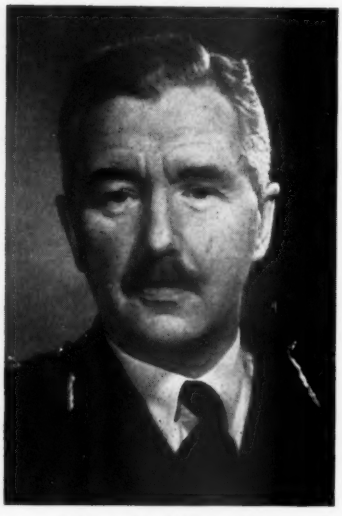
(*See editorial note in our last week's issue*)

Mr. W. B. Richards

Appointment of Railway Executive and Area Officers

(*See biographical details on opposite page*)

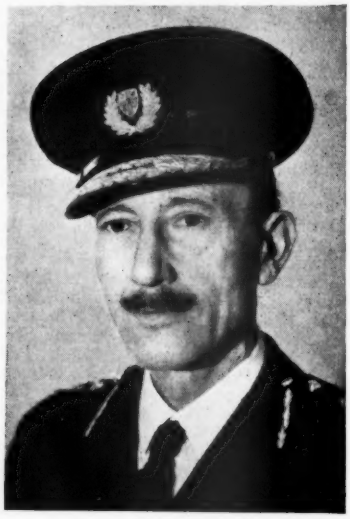
Mr. A. Lane



Colonel N. McK. Jesper

Mr. W. E. N. Growdon

Mr. C. J. Shepherd



Mr. H. S. Cole

Mr. G. E. Beynon

Mr. W. B. Richards, M.V.O., who, as recorded in our last week's issue, has been appointed Chief Officer (Police) to the Railway Executive, entered the service of the L.N.W.R. at Euston as a police trainee in 1910. After passing through the ranks of Detective, Inspector, Chief Inspector and Superintendent, he was appointed Assistant Chief of Police of the L.M.S.R. Police Force at the age of 35, and eleven years later became Chief of Police. For nearly 20 years Mr. Richards has had charge on the L.M.S.R. of the police arrangements in connection with the many Royal Train journeys undertaken during that period; in recognition of those services he received from the King in 1947 the insignia of a Member of the Royal Victorian Order. Mr. Richards is an Honorary Member of the English Chief Constables' Association (Cities & Boroughs); Chairman of the Railway Executive Police Committee; and Chairman of the British Railways Police Training School. In his new position he will be in charge of over 4,000 police covering the whole of Great Britain.

Mr. A. Lane, O.B.E., who has been appointed Chief of Police, Southern Area, British Railways, commenced his police career on the Great Western Railway at Paddington in 1911. In 1916 he was seconded to G.H.Q. Intelligence Corps, where he worked in contact with the French Civic Force, and for his services was awarded the Meritorious Service Medal. On his return to the G.W.R. he was attached to the Common Law & Prosecution Section of the Solicitor's Office, and in 1936 was appointed Assistant Chief of Police. Ten years later he was promoted Chief of Police. Mr. Lane represents the railway police on the Ministry of Food Pilferage Committee. In January last he was made an O.B.E.

Colonel N. McK. Jesper, O.B.E., D.S.O., M.C., who has been appointed Chief of Police, London Area, British Railways, joined the North Eastern Railway in 1914 as a traffic apprentice. He held various posts in the Operating Department before being appointed Chief of Police of the Southern Area, L.N.E.R., in 1945, and later of the Eastern Region, British Railways. He won the M.C. in France in the 1914-18 war, and during the recent war was awarded the D.S.O. for his services at Dunkirk, and the O.B.E. in connection with the expedition to Greece.

Mr. W. E. N. Growdon, who has been appointed Chief of Police, Midland Area, British Railways, was appointed by the India Office in 1920 to the Iraq Police, where he served for nearly 20 years, holding a number of important posts. In 1927 he attended the senior colonial police officers' course at Scotland Yard. During the recent war he was appointed to the Air Ministry Directorate of Intelligence, from which he resigned in 1946 to take up the appointment of Deputy Chief of Police, Southern Railway; in the next year he was promoted Chief of Police. Mr. Growdon is the holder of the Order of Rafidain for distinguished police service, and the Polonia Restituta (equivalent to the Legion of Honour).

Mr. G. J. Shepherd, O.B.E., who has been appointed Chief of Police, Eastern Area, British Railways, spent his early railway career in the Commercial and Operating Departments of the L.N.E.R. He served through the 1914-18 war, and retired with the rank of Captain. In the recent war he was awarded the M.B.E. for services in Persia and Iraq, and the O.B.E. for services in North West Europe. He retired with the rank of Lt.-Colonel. Mr. Shepherd was appointed Assistant Chief of Police, Southern Area, L.N.E.R., in April, 1946.

Mr. H. S. Cole, who has been appointed Chief of Police, Northern Area, British Railways, joined the North Eastern Railway as a traffic apprentice in 1909. After serving in the 1914-18 war he held a number of positions in the Goods and Traffic Departments, and for three years was Overseas Trade Representative, Australasia. In 1929 he was appointed Docks Superintendent at Hull, and in 1934 was made Chief of Police of the North Eastern & Scottish Areas of the L.N.E.R., a position he retained until January 1, 1948, when he became Chief of Police, North Eastern Region.

Mr. G. E. Beynon, B.E.M., who has been appointed Chief of Police, Scottish Area, British Railways, entered the service of the L.N.W.R. in 1916 in South Wales as a junior clerk. In 1923 he transferred to the Police Department of the L.M.S.R. in London, where he served for 17 years, attaining the rank of Inspector, and transferring to Manchester as Chief Inspector and later to Birmingham. He was promoted Superintendent at Glasgow in January, 1947, and appointed Chief of Police, Scottish Region, British Railways, in January, 1948. He was awarded the B.E.M. for his police services during the recent war.

Mr. B. L. Metcalf has resigned from the board of the Brush Electrical Engineering Co. Ltd.

Mr. J. C. Kenkel has been appointed Assistant to Vice-President (Operation), Canadian National Railways, in place of Mr. Frank Simpson, recently appointed Manager of the railway, steamship, and dry dock facilities in Newfoundland.

Captain G. A. P. Upston (Universal Road Transport, Bristol) and Mr. J. W. Ellis (Pitt & Scott Limited, London) have been re-elected as Chairman and Vice-Chairman, respectively, of the Clearing House Group of the Road Haulage Association. Mr. N. E. Bennett (Richardson Transport Services Limited, London) and Mr. H. Firth (Roadway Services Limited, Huddersfield) are re-appointed to represent the group on the National Council.

Further Reorganisation in Scottish Region

District changes in Civil Engineer's Department

As reported on page 362 of our issue of April 1, the Civil Engineer's Department of the Scottish Region, British Railways, is to be reorganised into seven Districts. Further changes have been announced as detailed below.

In Glasgow North District the organisation will be as at present, except for the transferences to and from Edinburgh (former L.N.E.R.) District previously reported and the following transferences from Perth District: Dunblane (exclusive) to Oban; Killin Branch; and Ballachulish Branch. Also, the lines in Stirling from east of the bridge over the River Forth will be transferred from Thornton District.

Edinburgh (former L.N.E.R.) District will also be as at present, with the addition of the whole of Edinburgh (former L.M.S.R.) District as now existing, namely: Hartwood (inclusive) to Edinburgh (Princes Street) and Branches; Auchengray (inclusive) to Midcalder Junction; Wilsontown Branch; Morningside and Newmains; the Balerno, Barnton, and Granton Branches; and the New Leith Lines. Other transferences to the Edinburgh District were reported in our April 1 issue.

Perth District and Thornton District will be as at present, except for the transferences to Glasgow North District listed above.

The Edinburgh (former L.M.S.R.) District Engineer's office will be closed on April 24, when the Edinburgh (former L.M.S.R.) District is incorporated into Edinburgh District. This is a further step in the reorganisation and unification of the Civil Engineer's Department in the Scottish Region.

Public Relations & Publicity Reorganisation, British Railways

(*Concluded from page* 441)

licity Officer will have appropriate Assistants for Public Relations and Publicity respectively, of whom the senior will normally act as deputy. The division of responsibilities between these Assistants is identical with that between the P.R.O. and the Publicity Officer at the Railway Executive Headquarters.

Below is given a list showing the officers and assistants in the new organisation:—

Railway Executive Headquarters (222, Marylebone Road, London, N.W.1).

Public Relations Officer, D. S. M. Barrie; Public Correspondence and Suggestions Officer, J. R. Hind; Press Officer, C. S. Lock; Magazine Editor, W. C. Brudenell; Assistant for Films & Photographs, J. Masterton; Publicity Officer, G. Wynne Davies; Assistant Publicity Officer, F. D. Y. Faulkner; Advertisement Display Officer, H. J. G. Francis; Production Assistant, A. T. Salmon.

Eastern Region (Marylebone Station, London, N.W.1).

Regional Public Relations & Publicity Officer, M. B. Thomas; Public Relations Assistant, T. A. Germaine; Publicity Assistant, S. Bollon; Chief Clerk (Staff & Administration), J. F. Wheatley; Regional Magazine Editor (To be appointed).

London Midland Region (Euston House, London, N.W.1).

Regional Public Relations & Publicity Officer, George Dow; Public Relations Assistant, J. W. Tonge; Publicity Assistant, G. F. Olden; Regional Magazine Editor (To be appointed).

North Eastern Region (York).

Regional Public Relations & Publicity Officer, S. W. Jesper; Public Relations Assistant, H. J. Price; Publicity Assistant, W. McDonald; Regional Magazine Editor (To be appointed).

Scottish Region (Glasgow).

Regional Public Relations & Publicity Officer, H. M. Hunter; Public Relations Assistant, J. Bathgate; Publicity Assistant, J. B. Dunlop; Chief Clerk (Staff & Administration), R. Ireland; Regional Magazine Editor (Acting), W. Kerr.

Southern Region (Waterloo Station, London, S.E.1).

Regional Public Relations & Publicity Officer, C. Grasemann; Public Relations Assistant, K. R. Ellson; Publicity Assistant, G. R. Walter; Chief Clerk (Staff & Administration), P. J. Harding; Regional Magazine Editor, Ben Webb.

Western Region (Paddington Station, London).

Regional Public Relations & Publicity Officer, M. J. M. Dewar; Public Relations Assistant, J. H. Wells; Publicity Assistant, R. F. Hurford; Regional Magazine Editor, W. H. M. Woodley.

Progress of the French National Railways in 1948

In a recent speech outlining the progress made by the French railways in 1948, M. Flouret, Chairman of the French National Railways, emphasised that the railway traffic aggregated 72,000 million km. units in 1948, contrasting with 48,500 million km. units in 1938, an increase of nearly 50 per cent. This was achieved in spite of reduced personnel (some 900,000 by the end of 1948, or about 35,000 less than in 1938) and a rolling stock total which varied between one quarter and one third less than in 1938, according to category.

In 1948, 652,000,000 passengers were carried, as compared with 540,000,000 in 1938, an increase of nearly 21 per cent. Goods traffic had increased to 158,000,000 *tonnes*, or about 20 per cent. more than in 1938 (132,000,000 *tonnes*). That the target set by the Monnet Plan for the goods traffic (189,000,000 *tonnes*) had not been attained was because of the various social conflicts which had affected adversely the country's economic activities during the year.

The number of loaded wagons in 1948 was smaller than in 1938, but the turnround quicker, and the average loadings better—11.7 *tonnes* a wagon as against 9 *tonnes* in 1938.

These improvements and a better rationalisation of the service would make it possible to manage in future with a total of 400,000 goods wagons as against the 480,000 before the war. Hence, a saving of some fr. 100,000 million in capital outlay, and of fr. 5,000 million in yearly maintenance would be achieved.

Regarding coal, M. Flouret stated that only 8,000,000 *tonnes* had been consumed in 1948, as compared with an annual average of 9,000,000 before the war. The first-named figure meant an eighth of the country's entire coal consumption contrasting with a ratio of one quarter obtaining in the United States.

When the French National Railways took charge, at the beginning of 1937, of the systems of the former French railway companies the deficit of the common fund of the companies amounted to fr. 30,000 million. It was repaid within three years. In 1946, 1947, and 1948, the deficit of the working accounts averaged only 5 per cent., and the prospects for 1949, based on the results recorded in December last, pointed to a substantial improvement in this respect.

The French National Railways had been granted fr. 8,120 million under the heading of "extraordinary subsidy designed to cover the deficit for 1948." That grant had nothing to do with a pretended deficit, M. Flouret stated, but was to be regarded as compensation legally due for the loss sustained by the French National Railways for services which the State required to be carried out at reduced fares and rates (military transport, reduced fares for families with numerous children, etc.). Those reductions represent an annual charge averaging fr. 11,000 million. Hence, that grant could not be described as a "financial aid."

On the other hand, the fr. 32,000 million received from the State as reconstitution advances, and the fr. 32,700 million obtained as advances towards the modernisation and re-equipment fund were intended to finance the reconstitution and re-establishment budget. Finally, the fr. 35,000 million obtained from the Treasury as current advances were intended to cover the absence of a circulating fund.

A reserve fund would be required, M. Flouret explained, to meet exceptional contingencies, such as, for example, a drop in working receipts because of a sudden economic crisis. A case in point was the unexpected burden of fr. 8,700 million in taxes which had accrued from the fiscal reform, and which had to be added to the taxes totalling fr. 22,000 million which the French National Railways had to pay in 1949.

Out of the credits granted to the French National Railways for 1949, fr. 33,000 million will be used for rolling stock, and fr. 13,000 million for the completion of the Paris—Lyons electrification.

Institute of Transport Congress at Buxton

The provisional programme has now been prepared for the first post-war Congress of the Institute of Transport, to be held at Buxton from Wednesday, June 22, to Friday, June 24, inclusive. The headquarters for the Congress will be the Palace Hotel, Buxton. This hotel is adjacent to the station and provides first-class amenities, including a swimming pool. It will reserve accommodation for members and visitors from Tuesday, June 21 (dinner), until Friday, June 24 (breakfast), with lunch on Thursday, June 23, only, at a special charge of £5 5s. Early application for accommodation is advised and the Institute Congress should be mentioned. If rooms are required for a shorter period, there will be a small addition to the rate, but any stay for a longer period than the Congress may continue at the same special rate. The charge for the same period at the Savoy Hotel, Hall Bank, Buxton, is £3 3s. 6d., and at the Argyle Private Hotel, Broad Walk, Buxton, £3 3s.

The programme of papers and visits is as follows:—

JUNE 22

Morning: Paper and discussion—"The team spirit in industry," by J. Benstead, C.B.E., M.Inst.T. (Deputy Chairman of the British Transport Commission). Sightseeing tour for ladies.

Afternoon: Alternative visits at Derby to the Railway Control Office, the Carriage & Wagon Works, the School of Transport, the Rolls-Royce Works, the Royal Crown Derby Works (for ladies). A special train will be provided for the journey to Derby and back.

Evening: Reception by the Mayor of Buxton.

JUNE 23

Morning: Paper and discussion: "Philosophy of transport," by Raymond Birch, M.I.Mech.E., M.Inst.T. (former Member of Council). Visit for ladies.

Afternoon: Alternative visits to Chatsworth House and the works of the North Western Road Car Co. Ltd. at Stockport.

Evening: Reception by the President, and dance.

JUNE 24

Morning: Alternative visits at Manchester to Manchester Ship Canal, the Mills of Richard Haworth & Company, the School of Signalling. Lunch in Manchester will conclude the programme.

A special train will be provided for the journey to Manchester, and arrangements have been made for the return to Buxtons if required. Those returning to their home stations from Manchester will be able to do so without further booking, and their luggage will be transported to their departure stations from Buxton.

Transport in connection with the various visits is being provided by the Railway Executive (London Midland Region), the North Western Road Car Co. Ltd., the Trent Motor Traction Co. Ltd., and Manchester Corporation Transport.

I.C.I. METALS EXHIBIT AT B.I.F.—The Metals Division of Imperial Chemical Industries Limited will show, at the Castle Bromwich section of the B.I.F., aluminium alloys used in coachbuilding, an exhibit illustrating investigations into the use of copper or aluminium alloy faced roofing panels, and the adhesives for bonding the layers which make up these units. There will also be a model representing the inlet end of a condenser, which will be used to demonstrate operating conditions tending to erosion, corrosion, or deterioration from impingement.

VISIT TO BECKTON GAS WORKS.—On Saturday, April 9, members of British Railways, Southern Region, Lecture & Debating Society visited the Gas Light & Coke Company works at Beckton, East Ham. Apart from inspecting installations concerned with the production of gas and its by-products, the party was shown various aspects of industrial railway operation on the extensive system maintained by these works. Mechanical engineering on the system was represented by a visit to the railway workshops and engine house, and signalling by an inspection of the cabin from which point and signal operation is controlled.

Ulster Transport Authority

(*Concluded from page* 443)

required to submit, within a time limit, proposals for maximum charges and conditions of carriage on both the passenger and freight side, and the classification of goods on the merchandise side, and provision has also been made for the revision of these matters every three to five years thereafter.

The closing of sections of railway lines where this is considered necessary or desirable is a matter which has also been placed within the jurisdiction of the Tribunal as, in the event of the objection to any such closure by a member of the public, the Authority or the railway company concerned cannot then proceed with the closing of the line until the Tribunal has adjudicated on it in public sitting.

In addition, the Tribunal has the usual powers to hear all specific complaints taken to it from time to time by various members of the public, trade, and passenger associations and the like, and, in addition, there has been transferred to it all the jurisdiction of the old Railway & Canal Commission. Accordingly, it was felt desirable that there should be a Chief Officer at the highest level who would be free to devote himself to these various matters and provision has been made accordingly.

REGIONAL & LINE ORGANISATION

The setting up of the headquarters organisation outlined above cleared the ground for an approach to the further reorganisation necessary throughout the territory in which the Authority operates, and further developments aimed at creating a truly amalgamated and co-ordinated transport organisation are now taking place.

Improvements to the Italian Railways with Marshall Aid

The Italian State Railways are discussing the possibility of using E.R.P. funds to finance further electrification and the construction of new lines

The question of improving railway facilities by using the European Recovery Programme lira fund allocations is being discussed, although no definite agreement has been reached. The projects envisaged are twofold: improvements of existing lines, particularly by the electrification of steam-operated railways, and new railways.

The Italian State Railways already have begun using E.R.P. funds in extending the 3,000-volt direct-current system to Genoa Brignole on the Genoa-Rome railway, and it is working on using this system also on the Genoa Brignole-Turin Porta Nuova line and on the Genoa Brignole-Voghera section of the Genoa-Milan railway.

The electrification programme which, in the opinion of several heads of the State Railways, should be carried out with E.R.P. funds, further includes: the electrification of the Turin P.N.-Milan-Verona-Padua-Venice-Italian frontier railway; the electrification of the Padua-Bologna railway; and the doubling and electrification of the so-called Adriatic railway from Ancona to Brindisi and Lecce.

In southern Italy the E.R.P. funds should be used, among other things, for restoring of the double track and the electrification of the Naples-Cassino-Rome railway; laying double track on the Battipaglia-Reggio railway; electrifying the Reggio-Metaponto-Taranto-Brindisi railway, and subsequently doubling of the line up to Taranto; electrifying the Salerno - Avellino - Campobasso - Termoli, and the Battiglia-Potenza-Metaponto lines; and in improving some secondary railways.

The Minister of Transport, in a speech at Catania, pointed out that the State Railways favour the construction in Sicily of two diesel-electric stations to supply power for the electrification of the Palermo-Messina, Palermo-Catania, and Messina-Syracuse railways, which should be completed by 1952. He added that the State Railways plan to extend in Sicily the use of diesel traction, as it is advantageous from the point of view of the cost of fuel. Though it is not included in the E.R.P. improvements programmes, several Sicilian business circles have brought up the question of establishing a train-ferry service between Trapani and Tunis across the Tunis Channel to give direct railway connection between French North Africa and the European Continent through Italy.

New Lines

With reference to the construction of new railways, the available E.R.P. funds should be used in shortening the distance between Venice and the Austrian and Jugoslav frontiers by the building of a new railway from Portogruaro to Udine. On the Western frontier opinions differ in regard to the advantage of using E.R.P. funds in the rebuilding of the Cuneo-Ventimiglia railway, part of which traverses French territory, or in the construction of a new railway from Imperia to Garessio, to give direct connections between the Italian Riviera and the Cuneo province without crossing French territory.

Finally, the Italian railways are considering using E.R.P. funds to improve the railway connections between Genoa and Switzerland by the construction of a line between Tortona and Mortara to shorten the distance between Genoa and the Simplon tunnel.

It should not be forgotten, however, that the Italian State Railways accounts still show, in spite of the increase of the tariffs, a loss of about 20 billion lire, excluding the cost of the reconstruction of rolling stock, lines, bridges, and so on. This has forced the Railway Administration itself to reduce during the last part of 1948 allowances for work such as the enlargement of the Genoa terminus and the repair of passenger and freight stock.

It is doubtful, therefore, whether it will be possible for the Administration to carry out this "E.R.P. programme" of extending electric traction and building new railways, and it may be obliged to use the funds for normal reconstruction work, especially in view of the increased traffic requirements expected in 1950 in connection with the Holy Year.

North British Locomotive Co. Ltd.

The annual general meeting of the North British Locomotive Co. Ltd. was held recently in Glasgow, Sir Frederick C. Stewart, Chairman, presiding.

The Chairman, moving the adoption of the report and accounts, said that a year ago he emphasised that the road to industrial recovery was an uphill climb, with many difficulties to be overcome as a result of the poor state of the national economy.

These difficulties had not yet been removed, which meant that the state of their national economy was still very uncertain, but all the same it gave him great pleasure once again to submit for their approval accounts which showed an even better financial position and more satisfactory progress.

The results for the year showed a profit of £404,830, against £255,845 for the previous twelve months. Provision for taxation amounted to £221,881. This figure sub-divided into respective headings showed that £150,000 was set aside for income tax Schedule D, £11,881 for Schedule A, and £60,000 for profits tax. They had, therefore, material which left no doubt as to the burden which the company and industry in general had to bear, and the tremendous drain on resources which under more reasonable taxation conditions would provide the means to assist those whose duties were bound up in the management of industry. The reward of such effort was very much reduced as a result of this taxation burden.

The directors recommended the payment of the final dividend of 2 per cent. on the preference stock and a dividend of 5 per cent. on the ordinary stock for the year 1948.

Last year, under research and development there was a reserve of £38,000, and the directors had decided to alter this reserve to one for capital replacement and development, and had increased the amount by a further £92,000, bringing the total to £130,000.

Fixed assets had been increased by £110,692. These high replacement costs explained the reason why depreciation had been increased to an amount of £75,000 as compared with £50,000 in the previous year.

While the supply of certain materials remained difficult, it had nevertheless been their policy to ensure the greatest possible output by keeping up the inflow of these materials, and the success of this policy could be seen by the fact that the value of work in progress and stocks had not only been maintained, but showed a substantial increase over last year.

The balance sheet confirmed that their financial position was very sound. The excellent relationship with their customers was apparent from the fact that their sales were continuing at a high level. The works had been fully occupied, and once again the rate of output, in face of the continued difficulties and shortage of supplies, remained very satisfactory.

The order book was well filled and, apart from steam locomotives, they had received orders for diesel-electric and electric locomotives for railways abroad. He was pleased to state that the first of their special locomotives for underground haulage in mines had been exported to Canada.

Their export trade had contributed much to the successful business of the company, and the directors had continued to interest themselves and develop trade in these established markets with very successful results.

Railway Benevolent Institution.—At a recent meeting, the board of the Railway Benevolent Institution granted annuities to 12 widows and nine members, amounting to £367 4s. 0d.; one funeral gratuity of £5 on account of a deceased annuitant; and authorised 30 grants amounting to £284 10s. 0d. from the special benevolent fund in cases of immediate necessity. Grants made from the casualty fund during the month of February amounted to £636 10s. 6d.

Rolling Stock for a Spanish Electric Railway

(*Concluded from page* 445)

reserve lighting is taken from three 25-watt lamps fed from a standby accumulator battery. These reserve lamps light up when the main supply fails.

At each end of the coach in the upper part there are two 250-watt headlamps, capable of casting a beam more than 500 yd. ahead.

At each end also there are two red tail signals, fitted with moulded lenses to enable them to be seen at a considerable distance. Each has two 15-watt lamps, one fed from the traction circuit through a motor-generator, the other from the accumulators. The former is lighted normally, but should the current fail the other is connected at once to the accumulators.

There are indicator lamps in the driving compartments so that the motormen at all times can see if the tail lamps are burning.

Some dimensions of the coaches are given below:—

Length over buffers	63 ft. 4 in.
Overall length of body ...	61 ft. 1½ in.
Bogie wheelbase	7 ft. 4½ in.
Weight of body	12 tons 16 cwt.
Total weight	41 tons 8 cwt.

Compensation Claims in India

The Indian Railways have introduced new methods of settling claims which have increased fivefold in a decade

Compensation claims have been causing anxiety to the Indian Railways for several years. Since the war, on almost all railways, the number and cost of compensation claims have been mounting. Claims on three railway systems alone increased from 26,000 in 1938-39 to 130,000 in 1947-48; the claims bill during the same period rose from Rs. 2,00,000 to Rs. 40,00,000. The claims offices of the railways, despite expansion in personnel, have not been able to cope with the increase in the volume of their work. Arrears have accumulated and the delays in settlement of claims have aroused much public criticism. The railways thus have been paying for claims not only in money but also in the goodwill of their customers.

Consignments have to travel for distances up to 2,000 miles, and there are about 30 transhipment points where goods have to be transhipped from one gauge to another. The volume of traffic has increased in recent years, overloading certain sections, yards and goods sheds. In spite of these difficulties, it is felt that there is considerable room for improvement.

Claims Situation Reviewed

The Railway Board recently summoned senior commercial officers from the railways for a comprehensive review of the claims situation. As a result of this conference, railways have embarked on a drive to settle outstanding and petty claims, and eliminate irregularities which give rise to claims.

On January 1, 1949, a revised procedure for settlement of claims was brought into effect. Stationmasters of important stations have been authorised to make payment of certain claims not exceeding Rs. 50 at the time the delivery of the consignment is taken; similar powers for small stations have been delegated to touring Claims Inspectors. Directions have been issued for prompt collection of information for claims not exceeding Rs. 200 to enable Claims Officers to give their decision almost immediately. A summary procedure for dealing with outstanding claims has been evolved. When there is a *prima facie* evidence of responsibility of the railway, a claim will be settled without delay; where repudiation is called for it will be communicated promptly to the claimant.

Settlements for Total Loss

In the case of total loss of a consignment settlement will be made without further enquiry if a year has elapsed from the date of the booking of the missing consignment. Claims for total loss to which no answer exists are to be settled if the goods have been missing for more than six months, provided the claimants agree to reimburse the railways with the money paid to them in the event of the consignments being subsequently traced. The summary procedure, however, will not ordinarily apply to claims exceeding Rs. 500.

Payments of claims on the spot and application of summary procedure for liquidating arrears are undoubtedly exceptional measures; their justification is the urgent need of getting rid of huge arrears and of trimming the strength and cost of claims officers to reasonable proportions. With the arrears cleared and petty claims taken off their shoulders, the Claims Officers may be expected to deal expeditiously and thoroughly with the claims as they come in.

It is recognised, however, that the real solution of the problem lies in intensifying efforts for the prevention of claims. The railways are taking measures to minimise losses and damages in transit. Greater vigilance on the part of railway police and Watch & Ward staff is being ensured for prevention of pilferage. Emphasis is being laid upon the marking of consignments before they are booked and on the placing of guidances in wagons in such a manner that these documents are readily available. Greater care is to be exercised in loading damageable consignments away from wagon doors and in shunting of wagons, whether at the terminals or *en route*.

Claims Prevention Inspectors are to be appointed to ensure greater supervision from the point of view of prevention of claims. The railways have been asked to exercise their ingenuity in devising new methods of prevention of claims and to exchange the results of their experiments with them.

Meanwhile, the Railway Board is directing a publicity campaign to focus public attention on secure packing, clear labelling and correct marking of consignments dispatched by rail. The P.L.M. (Pack, Label, Mark Well) Campaign which began on February 7 last, will be conducted for six months through posters, press advertisements, cinema slides, and other media.

Road Motor Training School for Drivers, British Railways, Scottish Region

On March 23, Mr. T. F. Cameron, Chief Regional Officer, Scottish Region, British Railways, opened the instructional school for motor drivers, the first of its kind in Scotland, which has been set up at Sighthill Goods Station, Glasgow. The training is practical and technical. Two weeks are spent in the school room and practice yard and one week on the road, and the Ministry of Transport driving test completes the course.

Training Programme

In referring to the development of the internal-combustion engine and its application to the requirements of the Railway Executive, Mr. Cameron spoke of the need for efficient training of potential road motor drivers and said that the motor vehicle fleet is being expanded. The object of the school is the training of Railway Executive staff in all aspects of driving and an elementary background of the principles of the modern motor engine forms the basis of the instruction. The trainees are given instruction on the Highway Code and other regulations affecting motor drivers, preservation of tyres, and the compilation of time bills and other necessary documentation.

The school is well equipped and among the instructional models used in classroom tuition is a miniature highway complete with street intersections, traffic lights, crossings, vehicles and other traffic, illustrating almost every hazard likely to be met on the road under normal conditions.

There are also static trainers, with gear and wheel movements, and an interesting feature is a chassis and engine, mounted and electrically lit, which is used for instructional purposes. It is from a vehicle recovered at Inverness from fire wreckage and rebuilt and assembled at the instance of the Regional Road Motor Engineer, Mr. W. L. Turner.

Mr. T. H. Moffat, Deputy Chief Regional Officer, attended the opening ceremony, and among those taking part in the proceedings were Mr. W. Yeaman, Commercial Superintendent; Mr. L. Meara, Road Transport Controller; Mr. W. L. Turner, Road Motor Engineer; and Mr. J. Colquhoun, of the National Union of Railwaymen.

Group including Mr. T. F. Cameron, Chief Regional Officer, Scottish Region (holding hat), studying model highway at the Road Motor Training School, Scottish Region

New Bonaventure Freight Terminal, Montreal

Large Canadian National Railways project to meet industrial and commercial development of the city

The plans of the Canadian National Railways for the construction of modern freight warehouses and the installation of freight handling facilities in the Bonaventure area of Montreal have been placed before the city authorities. If the city approves these plans, the project will take about three years to complete, and will cost several million dollars. The project includes new freight terminal development west of the old Bonaventure passenger station, bounded on the east by Windsor Street, on the north by St. James Street, on the south by Notre Dame Street, and extending west to Guy Street.

Mr. N. B. Walton, Executive Vice-President, C.N.R., said the railway had made a careful and lengthy study of the freight terminal requirements for industrial and commercial development in the city of Montreal, and it had been determined that this location would best serve the interests of the public, merchants and shippers. It would place modern freight facilities convenient to stores and warehouses, and it would continue a well-established centre for the speedy handling of fruits and vegetables. The removal of obsolete structures, and the modernisation of the freight terminal would mean increased industrial efficiency.

The temporary re-arrangement of facilities, erection of warehouses and platforms, and the transfer of the freight office made since the fire in the Bonaventure area on August 23, 1948, will be fitted into the permanent plans for the terminal. New construction and the necessary re-arrangement of tracks in the area will progress by stages. The programme will not impede handling of freight at the terminal.

Buildings and freight houses are to be of concrete and steel construction, and fireproofed materials are to be used throughout. A sprinkler system is to be installed in the buildings to protect packages and shipments from possible damage by fire. The plans for the new warehouse for inbound freight call for it to be built parallel to St. James Street. It will be 70 ft. from the line of the street to give a clear artery for vehicular traffic moving past the lorries parked at the terminal. This building, sited west of the projected Windsor Street line, will be 2,000 ft. by 50 ft. A continuation of it, expanded to a width of 60 ft., will provide facilities for bonded freight shipments.

Outbound freight traffic will be handled in a warehouse to be built near the centre of the development. It will be 1,000 ft. by 40 ft., and extend from the new line of Windsor Street to Mountain Street. Teamways, 70 ft. wide, will be opened through the terminal on the south side to accommodate large motor lorries and vans. Many industries in the area are not served by industrial spur tracks, and the inability to use modern conveyances satisfactorily in the old terminal was a concern to shippers and the railway.

Transfer platforms for the consolidation of cars with less-than-carload-lot freight will be constructed between the inbound and outbound freight houses. An arrangement of continuous doors in warehouses, and use of the latest type of freight handling machinery, including lift trucks and pallets, will speed the flow of shipments. A two-storey freight office building, 320 ft. long and 70 ft. wide, will be erected west of the new Windsor Street. This building will be set back from the street, and ample space will be made available on the company's property for cars to be parked by shippers and employees without interference to street traffic. All offices dealing with the public will be on the ground floor. Pneumatic tubes and a public address system will connect the office building and the new warehouses for the fast transmission of bills of lading and handling instructions.

Public team tracks for servicing carload shipments will be constructed west of Mountain Street. They will be equipped with overhead cranes and easy access to them will be given by 60-ft. roadways opening to Notre Dame Street.

Southern Region Lecture & Debating Society

At a meeting of British Railways, Southern Region, Lecture & Debating Society, held at the Chapter House, on April 7, when Mr. R. M. T. Richards, Acting Chief Regional Officer, Southern Region, was in the chair, the three winning entries in the Society's prize essay competition were read to an appreciative audience of some sixty members. Before the essays were read, the winners were presented with cheques by Mr. Richards.

The first prize was awarded to Mr. A. E. Hall, Parcels Clerk, Bournemouth West, the second to Mr. H. E. Roberts, Assistant Stationmaster, Waterloo, and the third to Mr. W. L. Hadgraft, Audit Department, Dorking North. The subject of the essay was "What in your opinion is the best way to increase the net revenue of British Railways?" After the essays had been read, comment was made by Mr. C. F. Klapper, Assistant Editor, *Modern Transport*, and Mr. C. E. R. Sherrington, Secretary, Railway Research Service, two of the judges, followed by Mr. R. M. T. Richards' comments and some remarks from Mr. A. E. Hammett, now Commercial Superintendent, London Midland Region. A vote of thanks to the winners and the unsuccessful entrants was moved by Mr. O. W. Cromwell, Chief Officer for Labour & Establishment, and to the judges by Mr. R. A. Savill, the Society's Honorary Assistant Secretary, Publicity. Messrs. Klapper and Sherrington replied.

The fifteenth annual general meeting of the Society was held immediately after the prize essay reading. Mr. J. A. R. Turner, of the Railway Executive, was in the chair. The minutes of the previous annual general meeting were read and adopted, and the annual report and accounts for 1948-49 also were adopted. Mr. W. G. Tharby, Commercial Superintendent's Office, was elected Honorary Librarian, and the other officers of the Society were re-elected for 1949/1950.

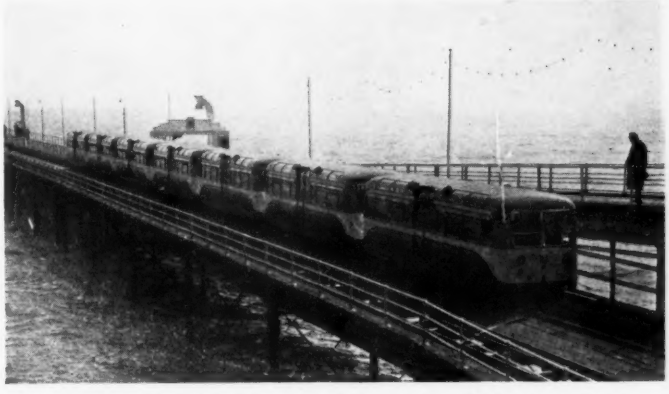
The Society's activities will continue during the summer months, with visits to places of transport and general educational interest, including a visit to the Aldershot & District Traction Co. Ltd., on May 14, Northern France on May 20-22, and a social outing over the course of the Surrey Iron Railway on July 23.

New Trains for Southend Pier Railway

The first 7-car train of new coaches, constructed by A.C. Cars Limited for the 3-ft. 6-in.-gauge electric railway on the pier at Southend-on-Sea, was placed in service on April 13. The inauguration ceremony was performed by Lord Broadbridge, deputising for the Lord Mayor of London, Sir George Aylwen. Three more trains are under construction at the Thames Ditton works of A.C. Cars Limited and will be delivered during the next two months. Since the railway was electrified in 1890 it has carried over 65,000,000 passengers, and more than 3,000,000 passengers were carried during 1948.

The new trains are made up of three motor coaches, and four trailer coaches, on the multiple-unit principle, which allows shorter trains to be operated if necessary. The coaches are fitted with pneumatic sliding doors. The seating capacity of a 7-coach train is 245 passengers and the maximum speed about 18 m.p.h. The coaches are mounted on four-wheel trucks with a wheelbase of 14 ft. 6 in. The motors were supplied by Crompton Parkinson Limited; the control equipment by Allen West Limited; and the trucks by Maley & Taunton Limited. The doors were supplied by G. D. Peters Limited and the window fittings by the Rawlings Manufacturing Co. Ltd. Mr. P. E. Warner was Consulting Engineer to A.C. Cars Limited for this contract.

New Trains on Southend Pier



The first of the new trains in service on April 13

Notes and News

Vacancy for Designing Mechanical Engineer.—Applications will be received until May 21, by the Agent-General for Queensland, 409/410, Strand, London, W.C.2, from persons desirous of appointment to the position of designing mechanical engineer. See Official Notices on page 455.

Liverpool Overhead Railway.—Although Liverpool Overhead Railway traffic advanced by £583 in the fortnight ended March 13, there was a deterioration by £252 in the following two weeks, and at March 27 total receipts for 1949 were only £946 above those for last year. During the week ended March 27, traffics were £2,497 and on the aggregate amounted to £32,492.

Ulster Transport Authority.—According to a recent traffic return, receipts of the Ulster Transport Authority for the week ended April 3, as compared with the equivalent period of last year, were as follow:—

	1949	Inc. or decr.
	£	£
Passenger	51,404	— 12,807
Goods	29,888	— 10,332

Aggregate traffics for the current 26 weeks showed an increase of £278,016.

Beyer, Peacock Profits Higher.—The accounts of Beyer, Peacock & Co. Ltd. show a combined profit for the company and its subsidiaries of £282,333, and this represents an increase of £27,715 on the previous year. Last year, the distribution on the ordinary capital was increased to 6 per cent., less tax, by the payment of a bonus of 1 per cent., and this higher rate is being maintained in respect of 1948.

Last C.P.R. Locomotive of its Kind.—A Selkirk type locomotive, No. 5935, which may be the last steam locomotive to be taken over by the Canadian Pacific Railway, was inspected recently by C.P.R. officials at Montreal Locomotive Works. Diesel power is expected to replace steam on the C.P.R. in a long-range programme. In the photograph reproduced below, standing in front of the locomotive, stated to be the largest in the British Empire, before it was taken over from Montreal Locomotive Works, are Mr. N. R. Crump, Vice-President of Operations, C.P.R., and Sir Frederick Carson, Executive Vice-President, Montreal Locomotive Works.

Norwegian Mechanical Handling Exhibition.—During the last week in March the Norwegian Development Association in collaboration with B.E.T.R.O. staged a successful exhibition of mechanical handling equipment at Oslo. Many British firms were represented and market research into the requirements of Norwegian industry was carried out by members of B.E.T.R.O. staff. This research will form the subject of a report to be circulated to exhibitors at a later date.

New Tug at Fleetwood Dock.—The London Midland Region diesel tug *Landy II*, ordered in 1947, now has been delivered and is in service at Wyre Docks, Fleetwood, in replacement of an old steam-driven vessel. The new tug, which was built by Richard Dunston Limited, of Thorne, near Doncaster, has an overall length of 75 ft., breadth of 16 ft., and depth of 9 ft.; it has two Ruston & Hornsby 6-cylinder engines, with oil-operated reverse reduction gear. It is equipped with two fire and salvage pumps, each of 350 gal. per min. capacity, driven by the main engines.

Leyland Motors Limited.—In his address to the shareholders of Leyland Motors Limited on March 16, Mr. C. Basil Nixon, Chairman, said that during the year the company had entered into an agreement with the Metropolitan-Cammell Carriage & Wagon Co. Ltd. for the joint design, manufacture, and sale of single-deck integral buses, primarily for the home market. Manufacture of these buses was also to be undertaken in Australia. For the year under review, export sales were 280 per cent. higher than 1938 by value, and by volume rather more than 100 per cent. There had been an increase in orders for the home market. The need for these vehicles to support the economy of the country was very real and if neither the steel manufacturers nor the vehicle builders were interfered with it might be found by the end of the present year that the acute shortage had passed. Despite increased charges no increased burden had fallen on purchasers of their products. A larger profit derived from the bringing into use of better equipment, increased general efficiency, and approximately parallel increases in the volume and value of their turnover.

Inspection of Road Transport Divisional Offices.—Sir Cyril Hurcomb, Chairman of the British Transport Commission, accompanied by Major-General G. N. Russell, Chairman of the Road Transport Executive, visited Birmingham, Nottingham, and Leicester on April 19 and 20 to inspect the Divisional Offices (Freight) of the Road Transport Executive at Birmingham and various road undertakings acquired by the B.T.C. in the Midlands.

Ransome & Marles Bearing Company.—The capital of the Ransome & Marles Bearing Co. Ltd. is to be increased to £1,000,000 by the creation of 1,200,000 shares of 5s. each, while the existing capital of £700,000 is to be reconverted into 2,800,000 shares of 5s. each, fully paid. The issue will recoup the company of a substantial part of the capital expenditure incurred during the past year and now in contemplation and will also provide additional working capital to finance increased output. The consent of the Treasury has been obtained.

Traction Motors for London Transport.—A further order for 94 type LT 111 motors for new surface-line rolling stock has been placed with the General Electric Co. Ltd. by the London Transport Executive. With the 156 motors ordered last year this order brings up to 250 the number of motors of this type which the G.E.C. is supplying to London Transport. The LT 111 motor has a one-hour rating of 110 h.p. and a continuous rating of 80 h.p. In the new trains for which these motors have been ordered every car will have two motored axles.

Annual Indian State Railways Dinner.—The annual Indian State Railways dinner will be held on Monday, May 30 at 7 for 7.30 p.m., at the Rembrandt Hotel (opposite the Victoria & Albert Museum), Thurloe Place, London, S.W.7. Sir Leonard Wilson will be in the Chair, and the principal speaker will be Mr. W. Hood, late General Manager, G.I.P.R. Tickets are 17s. 6d. a head, obtainable from Mr. N. Calder, East India & Sports Club, St. James's Square, S.W.1, and cheques should be drawn in favour of the Secretary, Indian State Railways Dinner Club. Dress will be lounge suits.

Re-Signalling of the London Transport Uxbridge Line.—With a view to increasing services on the Uxbridge line when the rolling stock position permits London Transport has just completed important re-signalling work between Rayners Lane and Uxbridge. As a result the capacity of the line has been increased to allow a maximum service of 30 trains an hour instead of 20. This re-signalling is comple-

The Last of its Kind for the C.P.R.

Mr. N. R. Crump, Vice-President of Operations, C.P.R., and Sir Frederick Carson, Executive Vice-President, Montreal Locomotive Works, standing in front of what is stated to be the last steam locomotive likely to be delivered to the C.P.R. (see paragraph above)

OFFICIAL NOTICES

None of the vacancies on this page relates to a man between the ages of 18 and 50, inclusive, or a woman between the ages of 18 and 40, inclusive, unless he, or she, is excepted from the provisions of the Control of Engagement Order, 1947, or the vacancy is for employment excepted from the provisions of that Order.

AUSTRALIA

QUEENSLAND GOVERNMENT RAILWAYS

VACANCY FOR DESIGNING MECHANICAL ENGINEER

APPLICATIONS will be received by the undersigned until May 21, 1949, from persons desirous of appointment to the above position. Applicants must possess degree or diploma in Mechanical and Electrical Engineering, and have acquired a thorough technical and practical training and experience in designing of steel carriage and wagon stock and be capable of making calculations involved in such design.

The present salary range is minimum £647, maximum £772 (Australian) per annum. First class passages will be provided to Brisbane, and salary of successful applicant will commence as from date of departure from the United Kingdom.

Particulars required to be furnished by applicants and conditions of employment will be supplied on application to the undersigned.

L. H. PIKE,
Agent-General for Queensland,
409/410, Strand,
London, W.C.2.

His Majesty's Colonial Service

THE COLONIAL ENGINEERING SERVICE

APPLICATIONS are invited for the post of Chief Draughtsman, Nigerian Railways. Candidates, who must be Associate Members of the Institution of Mechanical Engineers, should have served an apprenticeship in the works of a Home Railway or a firm of locomotive builders and have had 8 to 10 years' experience in a Locomotive Drawing Office at home or in the Drawing Office of a Colonial Railway. Carriage and Wagon Drawing Office experience in addition is highly desirable. They must be thoroughly conversant with modern locomotive practice, preparation of designs, detail drawings, standardisation specifications and indents; also with tools and fixtures for the manufacture of Locomotive Carriage and Wagon spares in quantities. The duties of the post include the control and training of a staff of African draughtsmen and the supervision of a scheme for the training of African workshop apprentices.

Appointment will be on probation for permanent and pensionable employment within the gross incremental salary scale £970 to £1,300 per annum. Partly furnished Government quarters are provided, at a rent of £90 per annum and free first class passages for the officer and, if married, for his wife once each way each tour. Home leave on full pay is granted after tours of 18 months at the rate of 7 days for each month of resident service.

Intending applicants should write at once to the DIRECTOR OF RECRUITMENT (COLONIAL SERVICE), Sanctuary Buildings, Great Smith Street, S.W.1, giving brief details of age, qualifications and experience, and quoting reference No. 27333/13.

THE Director-General, India Store Department, 52, Edgware Road, London, W.2, invites tenders for the supply of:—Locomotive Boilers, Superheated, coal burning: (*a*) "H.S.M." class for 2-8-0 goods locomotives; (*b*) "G.S." class for 4-6-0 passenger locomotives; (*c*) "N" class for 4-8-0 + 0-8-4 Garratt locomotives; and (*d*) "NM" class for 4-8-0 + 0-8-4 Garratt locomotives. The date for return of tenders has not yet been decided, and the tender forms are not yet ready. The latter will be sent as soon as available after the receipt of the fee of ten shillings. Reference D.O. 4720/48 should be quoted in all applications.

DESIGNER/DRAUGHTSMAN wanted with practical Railway Rolling Stock and Diesel Railcar experience. Must be first rate at calculations and of good personality. An engineer with some sales experience preferred. Apply by letter, giving full details of experience.—STAFF RECORDS OFFICE, A.E.C. LIMITED, Southall, Middlesex.

RAILWAY STORE METHODS. By W. H. Jarvis. Great Western Railway. The necessity for training officers—Organisation of stores department—Stores accounts. Cloth. 7¼ in. by 5 in. 116 pp. With diagrams. *4s. By post 4s. 3d.*

THE EVOLUTION OF RAILWAYS. Second edition, revised and enlarged. By Charles E. Lee. Traces the germ of railways back to Babylonian times. Cloth. 8¼ in. by 5¾ in. 72 pp. Illustrated. *6s. By post 6s. 4d.*

mentary to the major re-signalling scheme recently completed at Harrow-on-the-Hill which included the provision of remotely controlled signalling installations (the first large-scale application of this particular system) designed by London Transport engineers. The double line between Rayners Lane and Uxbridge is approximately five miles in length and includes two intermediate signal cabins at Eastcote and Ruislip and a ground frame at Hillingdon. The work involved the running of about 150,000 yd. of cable, erection of 57 signals, installation of 34 trainstops, and the running of 10,000 wires. The whole of the work was carried out at night without interference to traffic and was completed in approximately ten months.

British Oxygen Company.—The consolidated net profit of the British Oxygen Co. Ltd. for 1948 increased from £1,020,372 to £1,307,994, after providing £809,226, against £724,704, for depreciation and £1,361,112, against £1,074,786, for taxation. After allowing £488,124 for depreciation, £756,244 for income tax, and £342,440 for profits tax, the net profit of the parent company amounted to £960,631, as compared with £801,583 for the previous year. The ordinary dividend is maintained at 20 per cent. by a final payment of 12 per cent.

Hale & Hale (Tipton) Limited.—Cable brackets and similar fittings cast in malleable iron for the permanent way in railway electrification schemes will be among the exhibits of Hale & Hale (Tipton) Limited at the Castle Bromwich, Birmingham, Section of the British Industries Fair (May 2-13). Also on show will be examples of castings in Permalite, the new high duty alloy material, suitable for the production of brake drums, gear blanks, bushings, pressure and other castings required to resist shock and abrasion.

Skefko Ball Bearing Company Results.—At a meeting of the directors of the Skefko Ball Bearing Co. Ltd. on March 23 it was decided to recommend a final dividend of 7d. per stock unit of 5s., free of income tax, making 10d. per stock unit for the year ended December 31, 1948. Balance of profit, after providing for depreciation, reserve for replacements, taxation, and possible reductions in stock values, amounts to £250,670. The net profit for 1947 was £197,669. The annual general meeting will be held on April 28.

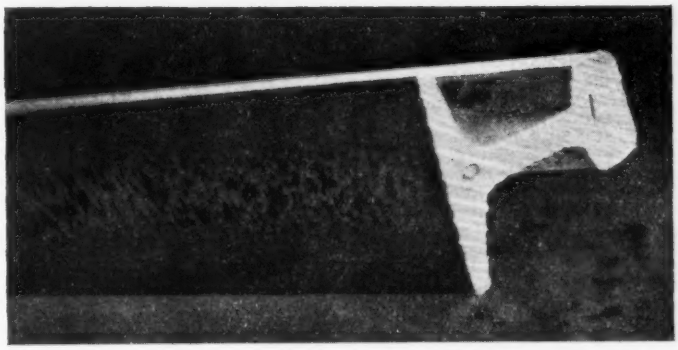
Station Renaming: Eastern Region.—As from May 1 the Eastern Region stations at Leyton and Leytonstone (formerly London Midland Region stations) are to be renamed Leyton Midland Road and Leytonstone High Road respectively.

Synchronous Condensers for Australia.—An order has been received by the General Electric Co. Ltd. for two synchronous condensers for the New South Wales Railways. The condensers are each rated at 20,000 kVA., 11 kV., 50 cycles, 3-phase, 1,000 r.p.m., and will be used in conjunction with automatic voltage regulators for the regulation of voltage on the 66-kV. side of step-down transformers at Carlingford terminal station. A 132-kV. transmission line connects the Carlingford station to the generating station at Lake Macquarie about 70 miles away. Each machine is started by means of a direct-coupled pony motor of the synchronous induction type and the excitation for the pony motor is derived from its own direct coupled exciter. The condenser is also capable of providing 21,800 kVA. at 12 kV. at zero lagging power factor or 10,000 kVA. at 10 kV. at zero leading power factor. To maintain stability of excitation, a pilot exciter is provided in addition to the main exciter, the two exciters being mounted at the end of the condenser remote from the starting motor. The pilot exciter provides excitation for both main and pony motor exciters.

British Railways Steel Coaches.—The first all-steel welded main-line corridor passenger coaches to be built in Great Britain are now in production at the London Midland Region works at Derby. Initially, 150 are to be built by British Railways at the rate of over one a week, and the first four coaches are already in traffic. In outward appearance and in interior finishing these coaches are indistinguishable from those built with timber body framing members and metal panels.

Birmingham Railway Carriage & Wagon Co. Ltd.—After charging debenture interest, £3,182, and taxation, £107,500, the profit for the year, including as hitherto the receipt of £19,093 relating to earlier

New Standard British F.B. Rail



The first rolling of the new British 109-lb. flat-bottom rail. This took place at the Cleveland Works, Middlesbrough, of Dorman Long & Co. Ltd. on March 21 (see paragraph in our March 25 issue)

years, was £127,659, as against £68,016 for 1947. The available balance on the profit and loss account is £242,584 as compared with £159,103 for 1947. The directors recommend the transfer of £83,814 to general reserve, payment of a dividend of 6 per cent. on the preference stock for the half-year to December 31, 1948, which with the interim dividend on this paid in August last amounts to £3,300 net, payment of a dividend of 7½ per cent. on the ordinary stock for the year, amounting to £40,878, and carrying forward £114,592 as compared with £114,925 in 1947. The dividend is the same as in the previous year.

Model Railway Club Exhibition.—Some 3,000 models, including a comprehensive display from each of the former railway groups, have been on show at the annual exhibition of the Model Railway Club, which was opened at Central Hall, Westminster, London, S.W.1, on Tuesday, April 19. Among the various track layouts is an extensive system staged by British Railways, with representative trains from each Region. The large stud of locomotives operating on this gauge "O" layout include a "Merchant Navy" Pacific, L.M.R. main-line diesel-electric, American 2-8-0, and "King" and "Antelope" class 4-6-0s, as well as a complete train in the new livery, which was headed by a blue "Duchess" class 4-6-2. A Great Central branch-line terminus by Mr. Peter B. Denny, is representative of a single-track branch in Yorkshire about 1912. The numerous models displayed included a particularly fine selection of *ex*-G.W.R. locomotives and several L.S.W.R. engines, of which Mr. J. H. Guamari's "S" Adams "X2" and "T1," and Mr. F. W. Bush's Adams "steam roller" may be mentioned. The exhibition is open until April 23, from 11 a.m. to 9 p.m.

Forthcoming Meetings

April 22 (*Fri.*).—Institute of Metals, Birmingham Local Section, at the James Watt Memorial Institute, Great Charles Street, Birmingham, at 6.30 p.m. Joint meeting with local section of the Royal Institute of Chemistry: "Corrosion," by Mr. W. H. J. Vernon.

April 22 (*Fri.*).—Institution of Mechanical Engineers, Storey's Gate, St. James's Park, London, S.W.1, at 6 p.m. James Clayton lecture on: "Invention and the Sifting Out of Engineering Facts," by Mr. E. G. Bailey.

April 22 (*Fri.*) and 23 (*Sat.*).—British Railways, Southern Region, Lecture & Debating Society; S.N.C.F. railwaymen's visit to the Society.

April 25 (*Mon.*).—Institution of Electrical Engineers, Savoy Place, London, W.C.2, at 5.30 p.m. Discussion on: "The Field for Battery Vehicles," opened by Mr. J. H. Johnson.

April 26 (*Tue.*).—Traders' Road Transport Association. Annual dinner at Grosvenor House, Park Lane, London. Principal guest, Mr. Barnes, Minister of Transport.

April 26 (*Tue.*).—Institute of Transport, Metropolitan Graduate & Student Society, at 80, Portland Place, London, W.1, at 6 p.m. Election of Officers, and committee, followed by brains trust and discussion.

April 30 (*Sat.*).—British Railways, Southern Region, Lecture & Debating Society. Visit to Romney, Hythe & Dymchurch Railway.

Railway Stock Market

Although stock markets have turned slightly more active, caution has again been the keynote in the industrial sections, because of the signs of growing competition in export markets and the knowledge that the heavy tax burden will not be relieved for another twelve months. The small flurry in shares with bonus prospects has died down, as it is now realised that, although the bonus tax is removed, capital increases still have to be approved by the Capital Issues Committee. The prevailing belief is that companies such as Vickers are in a special position as, if they were to decide on a bonus writing up of the nominal value of their shares, they would be merely restoring to shareholders losses suffered under past capital reorganisations. On the other hand, it is by no means certain that these companies could maintain their rate of dividend on the larger capital resulting from a bonus, without going outside the dividend limitation request.

Whereas industrials have been uncertain, British Funds gained further ground in anticipation of the terms of British Gas stock. This reflects the continued assumption that Gas stock will be longer dated than Transport (1978-88) and the other nationalisation stocks. Transport (1978-88) has moved up to 102, and Transport (1968-73) to 102⅝.

With the view prevailing that industrial shares offer little to "go for" at present, activity has tended to centre on foreign rails, especially Brazils. The latter have reflected renewed hopes that take-over terms for the various railways will be settled next month. Leopoldina preference stock may prove to be worth nearer 50 than the present price. Past experience has shown, however, that market estimates of take-over compensation can be extremely optimistic. Leopoldina ordinary stock has remained around £9¼ with the preference 33¼, the 4 per cent. debentures 89¼, the 6½ per cent. debentures 118½, and Leopoldina Terminal 5 per cent. debentures 89. Great Western of Brazil shares have remained active up to 128s. San Paulo ordinary stock continued to attract rather more attention around 155 on the view that news may be forthcoming shortly of plans to settle the additional compensation claims.

In other directions Antofagasta was 8½ with the preference stock at 54½. Manila "A" debentures remained more active around 94 with the preference shares at 9s. Mexican Railway 6 per cent. debentures were 86½, but, awaiting further news, United of Havana 1906 debentures have firmed up to 14. Beira Railway bearer shares have been firm at 50s. 3d., with few sellers reported, which is not surprising in view of the probable pay-out terms recently announced. Canadian Pacifics have been steadier at 18¼, at which there is a yield of nearly 8¼ per cent. on the basis of the dividend last year, but the market feels that the dividend can hardly be expected to be maintained in the absence of an increase in freight rates.

There was only a moderate business passing in shares of road transport and allied companies. Yields in many instances are quite attractive, and in many cases it is assumed that there are unlikely to be fresh take-over developments this year on either a voluntary or compulsory basis. Lancashire Transport at 90s. yield fully 5½ per cent., while Southdown Motor have changed hands around 160s., and West Riding around 77s. 6d.

Iron and steel were steady and rather more active in some cases. If the shares of the steel producers are exchanged into British Steel stock next year, iron and steel shares over the next twelve months represent an interesting option on British Funds.

Shares of locomotive building and engineering companies have been firm helped by the good impression created by the financial results issued recently. Beyer Peacock strengthened to 22s. 6d. on the full results and statement. Vulcan Foundry were 23s. 6d., North British Locomotive 21s., and Gloucester Wagon 51s. 10½d.

Traffic Table of Overseas and Foreign Railways

	Railways	Miles open	Week ended	Traffics for week: Total this year	Traffics for week: inc. or dec. compared with 1947/48	No. of week	Aggregate traffics to date: Total 1948/9	Aggregate traffics to date: Increase or decrease
				£	£		£	£
South & Central America	Antofagasta... ...	811	10.4.49	79,450	+ 30,460	14	1,008,970	+ 244,040
	Bolivar	174	July, 1948	$28,960	— $69,357	30	$471,287	— $301,893
	Brazil	—	—	—	—	—	—	—
	Cent. Uruguay ...	970	6.11.48	32,712	+ 2,978	18	593,105	— 7,652
	Costa Rica	281	31.1.49	35,772	— 3,648	31	250,009	+ 12,870
	Dorada	70	Jan., 1949	31,649	+ 8,549	4	31,649	+ 8,549
	G.W. of Brazil ...	1,040	9.4.49	38,200	+ 4,000	14	564,300	— 1,300
	Inter. Ctl. Amer. ...	794	Feb., 1949	$999,184	— $183,327	8	$2,088,986	— $382,179
	La Guaira	22½	Mar., 1949	$113,758	— $9,571	13	$329,753	+ $38,114
	Leopoldina	1,920	9.4.49	40,744	— 15,198	14	653,056	— 130,644
	Midland Uruguay ...	319	Sept., 1948	19,608	+ 3,123	12	67,355	+ 16,721
	Nitrate	382	15.4.49	18,352	+ 5,014	15	123,619	+ 37,290
	N.W. of Uruguay ...	113	Sept., 1948	5,686	— 1,213	12	16,335	+ 1,989
	Paraguay Cent. ...	274	8.4.49	G$122,513	+ G$51,948	40	G$4,167,858	+ G$1,469,481
	Peru Corp. ...	1,059	Feb., 1949	221,585	+ 69,198	35	1,604,881	+ 245,802
	Salvador	100	31.12.48	c267,000	+ c16,000	26	c776,000	+ c53,400
	San Paulo	153¼	—	—	—	—	—	—
	Taltal	156	Mar., 1949	11,410	— 395	39	80,340	+ 9,930
	United of Havana ...	1,301	2.4.49	$471,910	— $55,581	39	$10,506,347	— $3,355,560
	Uruguay Northern	73	Sept., 1948	1,072	+ 52	12	3,308	+ 111
Canada	Canadian National...	23,473	Feb., 1949	9,225,250	+ 721,000	8	18,552,500	+ 1,547,750
	Canadian Pacific ...	17,037	Feb., 1949	6,725,000	+ 653,500	8	13,666,750	+ 1,363,750
Various	Barsi Light* ...	202	Mar., 1949	27,007	+ 4,380	52	332,682	+ 36,885
	Beira	204	Jan., 1949	119,237	+ 2,927	18	484,544	+ 15,321
	Egyptian Delta ...	607	20.2.49	18,224	— 1,856	47	654,526	+ 103,202
	Gold Coast ...	536	Feb., 1949	239,784	+ 40,316	48	2,385,740	+ 579,253
	Manila	—	—	—	—	—	—	—
	Mid. of W. Australia	277	Feb., 1949	26,956	+ 5,101	35	230,008	+ 45,625
	Nigeria	1,900	Jan., 1949	588,386	+ 66,599	41	4,751,241	+ 851,938
	Rhodesia	2,445	Sept., 1947	643,980	+ 102,833	52	6,787,603	+ 612,938
	South Africa ...	13,347	26.3.49	1,383,152	+ 158,174	51	69,755,833	+ 4,022,960
	Victoria	4,774	Nov., 1948	1,452,889	+ 60,190	22	—	—

*Receipts are calculated @ 1s. 6d. to the rupee